8-1989

SFA Gardens Newsletter, August 1989

SFA Gardens, Stephen F. Austin State University

Friends of the
Stephen F. Austin State University
Arboretum

NEWSLETTER NO. 8, AUGUST, 1989
DR. DAVID CREECH
DEPARTMENT OF AGRICULTURE, BOX 13000
STEPHEN F. AUSTIN STATE UNIVERSITY
NACOGDOCHES, TEXAS 75962
(409-568-3705)

Once again, the Arboretum newsletter is late. Let's just say that too many events and a heavy dose of procrastination are the only excuses that come to mind. The good news is that the Arboretum continues to evolve as a botanical resource in this region of East Texas and a great deal of progress has been made in increasing the garden's outreach potential. Best of all, our living collection is making excellent growth. This newsletter chronicles arboretum happenings since October, 1988.

TABLE OF CONTENTS

ARBORETUM HAPPENINGS

NOTES FROM THE GARDEN: What a strange winter, spring, and summer this has been! The relatively mild winter was punctuated by two hard freezes in February, two in March, and a record-breaker on April 11, 1989, that caught everyone by surprise. A raging LaNana creek roamed over its banks for the first time since the LaNana planting was established. In spite of all this hardship, the arboretum is enjoying a year of impressive plant growth. Now that the woodies in the Phase 1 and 2 areas have grown to good size, our flowering annual display is going to feature smaller colonies of color and will spill into the LaNana bottomland collection. We have added many new island beds in the LaNana bottomland and more are planned. The theme this year is a little quieter than year's past and we are concentrating more on expanding the collection of woodies. A great gift came from Roger Hughes of Carrizo Creek: a custom designed bird feeder, complete with a cedar shake roof and copper flashing. We placed it in the phase 2 area so it can get a lot of visibility. The Landscape Plant Materials class of Diane Prague, Scott Reeves, Cheri Cox, Jerry McMahan, Kenneth Davis, Jay Jones, Michelle Tatum, and Ronald Lundgren are due credit for planting and keeping our beds clean and weed free this past spring. In spite of being a very small class, the final product was an eye-opener. This class allows a quick appreciation of just what it means to seed, grow out, design, plant, weed, and observe groups of plant materials in the landscape; all in one semester. The garden's landscape goals this year are ambitious and we are looking ahead with a lot of excitement. Working behind the scenes, Chuck Martindale and Rick Rankin are due most of the credit for the progress we've made since January.

Most of the woodies have come through the winter in fine shape. While the February winter blast did a lot of damage in Texas, the temperatures in Nacogdoches dipped only into the mid-teens. The fact that Nacogdoches had been warm for so long prior to the hard freezes increased the chance for damage. The blueberry and peach industries in East Texas were damaged by the February and early March freezes but the heaviest damage occurred on April 11, 1989, when temperatures dipped into the twenties. This record late freeze was particularly hard on Nacogdoches county with many native plants caught by surprise.

The April freeze was less damaging at the arboretum than in the countryside. While crepe myrtles were fried to a crisp in many country gardens, the arboretum collection was not damaged. New growth on many native oaks and hollies suffered damage. Several species that I suspected as likely candidates for damage were not touched. The Glyptostrobus lineatus or Chinese cypress was unharmed. Clethra macrophylla suffered only minor leaf burn. Five varieties of Ardisia japonica burned to the ground but quickly put back out. The new growth on our Japanese maples was not hurt. All of the emerging Hibiscus herbaceous perennials were frozen back but quickly pushed new shoots. Hypericum beanii had been one of my favorites but it froze back to the crown. Our dozen Machilus thunbergi selections from the 1985 National Arboretum Korean expedition suffered varying degrees of damage. Those with severe

bark-cracking have forced new shoots from below the ground. The Mexico collection came through unscathed. Cinammomum japonicum, the Japanese Camphor tree, was killed outright.

One of the big surprises this summer has been the outstanding performance of Patrinia scabiosaefolia. Our fifty-foot border was planted on the north face of the head house in March, 1988. The plants were developed from National Arboretum seed collected during an autumn, 1985, exploration of the southwestern coast and islands of the Republic of Korea. It is a popular cut-flower crop in Korea and Japan, sporting long-lasting, bright yellow blooms that hold well in the vase. Patrinia's roots are used in traditional Chinese medicine to reduce bleeding. Our plants bloomed lightly the first year; in this second year they have been vigorous six-foot plants with bright yellow blooms in July and August, an excellent and often difficult time to have color in any Texas garden. They have not needed staking and have dealt well with the twenty inches of rain in June and several long dry spells. They have been very busy with bees and butterflies and have not been bothered by any leaf-eating insects. While the National Arboretum recommended a full-sun site, our plants have prospered on the exposed north face of the head house. Our plants came from seed collected on the Taean Peninsula on Korea's west coast on low hills overlooking the Yellow Sea. This plant is one of several being targeted for multiplication and distribution. This plant looks like a natural for the Texas field-grown cut flower industry, an industry just now trying to find itself.

There are so many plants that have done well that it's hard to pick out the stellar performers. The Dawn Redwood, Metasequoia glyptostroboides, near the Wilson sidewalk, is over 15 feet tall in three years and continues to amaze visitors. Pterocarya rehderiana is over 8 feet tall at the end of its second summer. Our Magnolia varieties have really found a good home in the deep, fertile LaNana flood plain soil. The novelty plant, Araucaria araucana, monkey puzzle tree, is still healthy after one year in the box garden bed of phase 1. Cornus controversa has been a surprise in the bottomland Asian collection; it's over ten feet tall after two summers and sports tiers of graceful, arching branches. Our Cunninghammias are just now breaking away from a topophysis response stage; for a year the plants refused to send up a leader, insisting instead to grow in the sprawling fashion of a side branch. Cuttings from side branches of conifers and other plants often develop into side-growing plants that are difficult to train. The general recommendation is to cut back side branches to near the crown and choose a forced leader if a single-trunk specimen is desired. Quercus polymorpha is twelve feet tall and is fighting its neigbor, a vigorous Wisteria vine, in the phase one area.

THE TREE PLANTING ON THE EDGE OF LANANA CREEK endured February, March, and April floods that rose four feet over their shoot tips. We knew this was bound to happen and were pleased to learn that only a few Mayhaws were swept away. Heavy rains easily drive the LaNana out of its banks in our section of the creek, a stretch that is essentially a weedy ditch subject to great sand

slough-offs during floods. We have heavily planted the edge to tupelos, mayhaws, catalpa and willow species, swamp chestnut oaks, basswood, and others. The container plants were set in early spring, 1988. They withered a bit in the summer of 1988 with weeds and drought because that section of the Arboretum wasn't under irrigation. Monte Bales was forced to run long sections of soaker hose to keep plants alive. Planting directly in a flood plain is always a difficult proposition if water speed is high. In our section of the LaNana, a speed of six feet per second is the norm during heavy rainfall periods; the fact that the creek floodway is forty feet wide and twenty feet deep during a flood makes the challenge especially difficult. Our approach has been to set mainly one-gallon plants within three to four feet of the bank edge, to choose species adapted to stream channels and wet feet, and to prune to single whips to reduce drag. Past experience has proven that until roots are well out into the native soil, plants are easily dislodged and swept away. We were lucky that our first big flood occurred a year after establishment and didn't last long. Most plants took on a heavy lean and looked disheveled for a week or so but all survived and are making strong growth.

A CONIFER COLLECTION has been planted to the east face of the Art building. The plants were set in the fall, 1988. The preplant soil preparation effort involved no more than three Roundup applications (August, September, and October) to kill the bermuda sod. Plants were set, watered in, and then bark mulched for the winter. The Landscape Plant Materials class put the finishing touches on the project by laying a railroad tie edging.

THE MEXICO GARDEN by the Art building has been given a facelift and numerous new species have been introduced. A Dasylirion from Mamulique Pass, north and east of Monterrey, may be a new species. We have multiplied the dwarf pink Scuttelaria wrightii (not confirmed) and underplanted it with Mexican lilies and dahlias. I have observed this plant for two growing seasons and think it has excellent potential in a dry garden; our plants are in full sun and no taller than nine inches. The woody subshrub spreads very slowly and spent blooms can be taken off with a weedeater. Planted 12 inches apart, the plant quickly fills an area. When watered modestly, the plant blooms profusely and is a striking pink accent. I have seen specimens of Scuttelaria wrightii before; the blooms were a dark blue-purple hue and not as conspicuous as this pink form. Four-inch cuttings root easily under mist. The cuttings should be moved to shade and hand-waterings as soon as roots are evident to prevent root rots. Other additions to the Mexico collection include several Yuccas and Agaves, Alligator Bark Junipers, many strange and wonderful oaks, a Mahonia gracilis, several Penstemons, a Mexico hickory, a Mexican buckeye, a Mexico Sapindus drummondii, Western Soapberry. We are making our second attempt at establishing a beautiful small and fine tree, Coursetia axillaris. The desert willows, dogwoods, and redbuds are well established and making excellent growth. Lynn Lowrey, the native plantsman I have referred to so many times before, has visited the Arboretum several times in the last six

months and praised the contribution this section is making to our understanding of plant adaptation. A Sophora viscifolia (not confirmed) bloomed profusely this spring and was literally blanketed in white for four weeks. The stringy seedpods give the tree a pendulous, weeping appearance of uncommon beauty. Look for this section to receive a healthy transfusion of new plants this fall. Our container collection and propagation efforts have been successful and promise a lot of excitement. Olassie Kenneth Davis is responsible for the rock work.

A NEW CATWALK THROUGH THE BOG, located on the southeast corner of the property, is ready for visitors and is bound to attract attention in the years ahead. The place is appropriately called "Peter's bog" and has benefitted from a wide range of native wetland introductions. Peter Loos is a former student, creator of the project, now working for Will Fleming Nursery, Tomball, Texas. One of the new additions to this area is a very fastigiate yaupon. I understand that this uncommon type of Ilex vomitoria has been named "Fleming's upright" after its discoverer. This extremely upright, narrow cultivar provides Yaupon enthusiasts another interesting form to work with. I'm not sure if the cultivar is berried or not. Pete visits our arboretum every so often and always leaves flats and containers brimming over with interesting plants. We have laid out a railroad tie edging to define our wetland project and we will be adding about two thousand square feet to this garden. After a little more dirt work, some drainage modifications and the construction of a "dam", we will be able to control the depth of water allowed to rest in this garden. Even though the bog area is no more than three thousand square feet, it is packed with interest. Chuck Martindale and Rick Rankin designed and built the catwalk more or less on their own and deserve a hearty thank you for their persistence.

THE CONTAINER COLLECTION now includes all of the plants propagated this last summer and fall as well as numerous gifts from individuals. The July, 1988, trip to the east coast and another Mexico expedition over the Thanksgiving holiday period provided the most plant material. We now have an excellent collection of Callicarpa, Itea, Illicium, and Akebia species. Cuttings from about thirty species of Viburnum collected from the National Arboretum, Washington, D.C., rooted at high percentages and are making excellent container growth. A Salvia penstemonoides is on the Texas rare and endangered list and is making fine growth. Seed set was poor this first year but we did manage to collect and plant about two dozen plump seed. We will be trying to root the side shoots of this rare, endangered native. We were fortunate enough to get good rooting of an excellent crossection of Ilex decidua and verticillata cultivars from cuttings collected from the North Carolina State University Arboretum. Another interesting item in the container collection is Pinus pinacea, a rare pine from the uplands of the San Madre Oriental Mountain range. We have built a container collection of Styrax japonica, the Japanese Snowbell, from seed that took over two years to germinate! Bigtooth maple, Acer grandidentatum, seed from trees in the Big Bend yielded a healthy collection of this interesting species.

THE IRRIGATION SYSTEM was expanded into several areas that will be planted and developed in the year ahead. The north end of the Arboretum includes the east facing slope of the Art building, the south-facing slope of the electrical station, and the undeveloped bottomland woods at its base to the east. This is a privet infested jungle that will be selectively cleared, cleaned up, and then planted to new additions in our woodland plant inventory. There are two main attributes about our irrigation system that make it attractive; it is inexpensive enough to fit our budget and efficient enough to fit our low-maintenance approach to irrigating a sizeable area. We are testing a large number of irrigation sprinkler heads and intend to monitor the long-term reliability of the many designs and types now in use. While the five and six-foot risers are a little distracting and coarse, they have none of the long-term maintenance requirements of hundreds of pop-ups. We are screening the risers by placing them in beds or planting their base with low-growing evergreen shrubs.

THE HERB SOCIETY OF DEEP EAST TEXAS met with this professor in November and December, 1988, and an agreement was reached in January, 1989, to develop a world-class herb garden in the SFA Arboretum. The Herb Society agreed to undertake a heavy burden of the installation, planting, and maintenance responsibilities. The

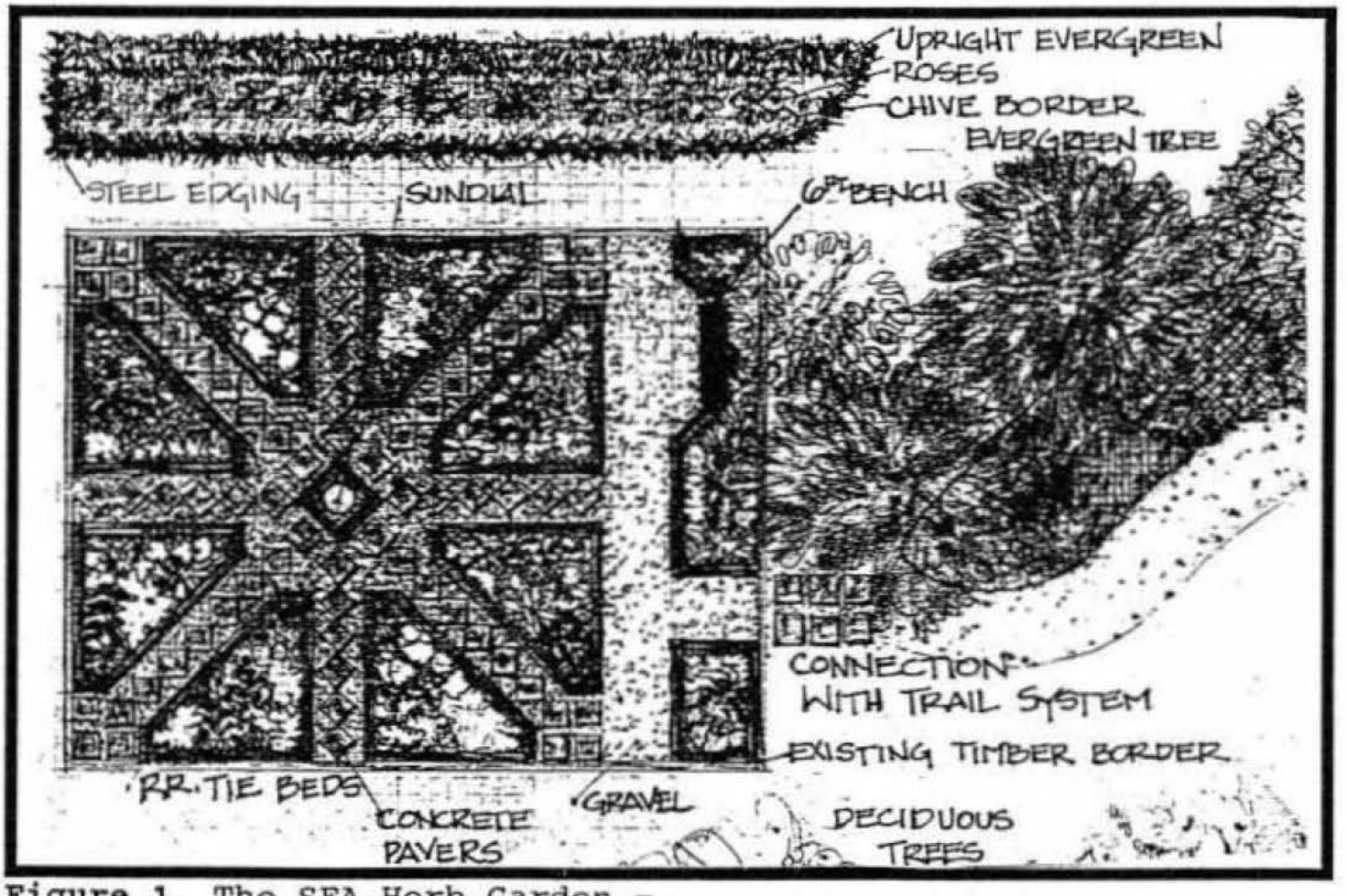

Figure 1. The SFA Herb Garden - Phase 1

ten-thousand square feet in the site is an underutilized section just to the south of the glass and quonset greenhouse. Both formal and informal themes will be used and the garden will be adorned with numerous embellishments: stone paths and steps, raised beds, statuary, arbors, trellises, screens, boulders, and a wonderful sundial, donated by Mrs. R.K. Lowrey of Nacogdoches. Both culinary and medicinal herbs will be featured and several hundred types will soon find their home in our garden. The goal is to evaluate a wide range of plant materials in five and ten square-foot colonies. A decision was made to set aside an area dedicated to the display of a large collection of native Texas herbs. The project will take many years to complete. A formal ground breaking took place May 13, 1989, with representatives from the Herb Society of Deep East Texas and SFA. A landscape design rendering was unveiled by its creator, Ms. Katherine Williams. Katherine is a former student with a degree in Landscape Architecture from Texas A & M. She has design and plant knowledge, which is an interesting combination in this day and time. The first task will be to cut and fit about two hundred railroad ties that are to be used in constructing the formal raised beds. The raised beds will be two railroad ties high and drilled to accept 3/8 inch rebarb for stabilization. The beds will be back-filled with loam and bark and prepped for planting.

THE MILL CREEK GARDEN project just west of town should see the topographic mapping effort come to an end in the next few months. Mr. Chuck Martindale's thesis project includes developing a map of

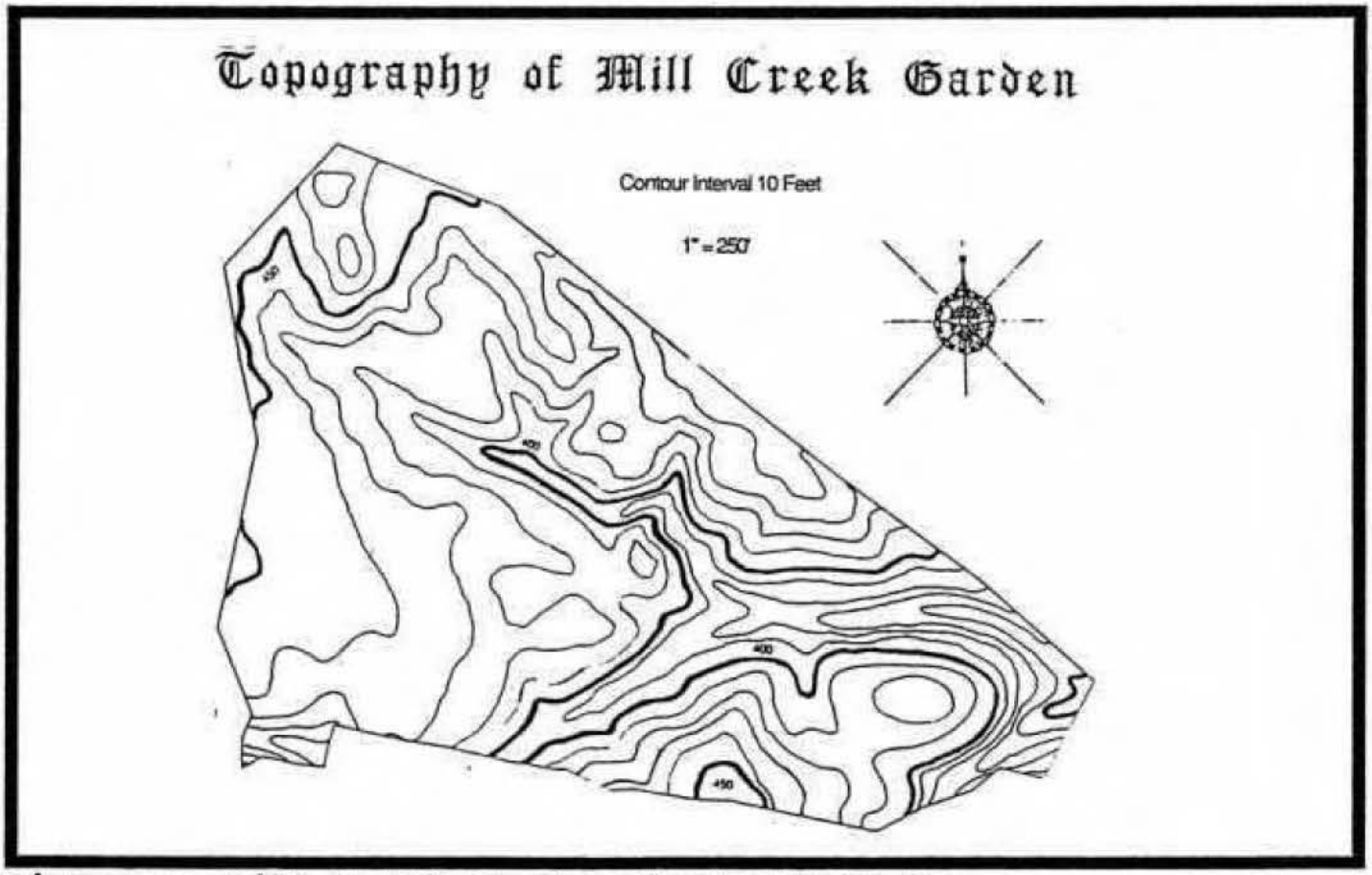

Figure 2. Mill Creek Garden plant sanctuary

119 acres based on 10 foot elevation changes. The study includes a biological diversity mapping aspect that is underway now. Dr. Elray Nixon, Biology, and Dr. Mike Fountain, Forestry, are on Chuck's committee and provide him with botany and ecology resource strengths as good as anywhere in the U.S. Essentially, Chuck will be sampling five-meter by five-meter plots and recording species presence, frequency, and size. That effort will focus primarily on woodies but a listing of herbaceous species in the target area will be developed from pressed plant samplings.

This unique project was made possible through a grant from S.B Hayter Trust, Nacogdoches, Texas. The project underlines the Hayter family's recognition and commitment to the special botanical community that rests on their land. While there has been more than a small amount of disruption in the waterfall and dam construction area, there will soon be a planting of sweet sprires, American snowbells and strawberry bushes to heal that region. A long range goal and an important part of the official mission statement of the garden will be a commitment to enhancing existing species diversity by the careful reintroduction of rare and uncommon East Texas natives into appropriate forest niches.

The LANANA CREEK TRAIL PROJECT led by Dr. Abernethy to create a jogging/walking trail has added a unique and special resource to

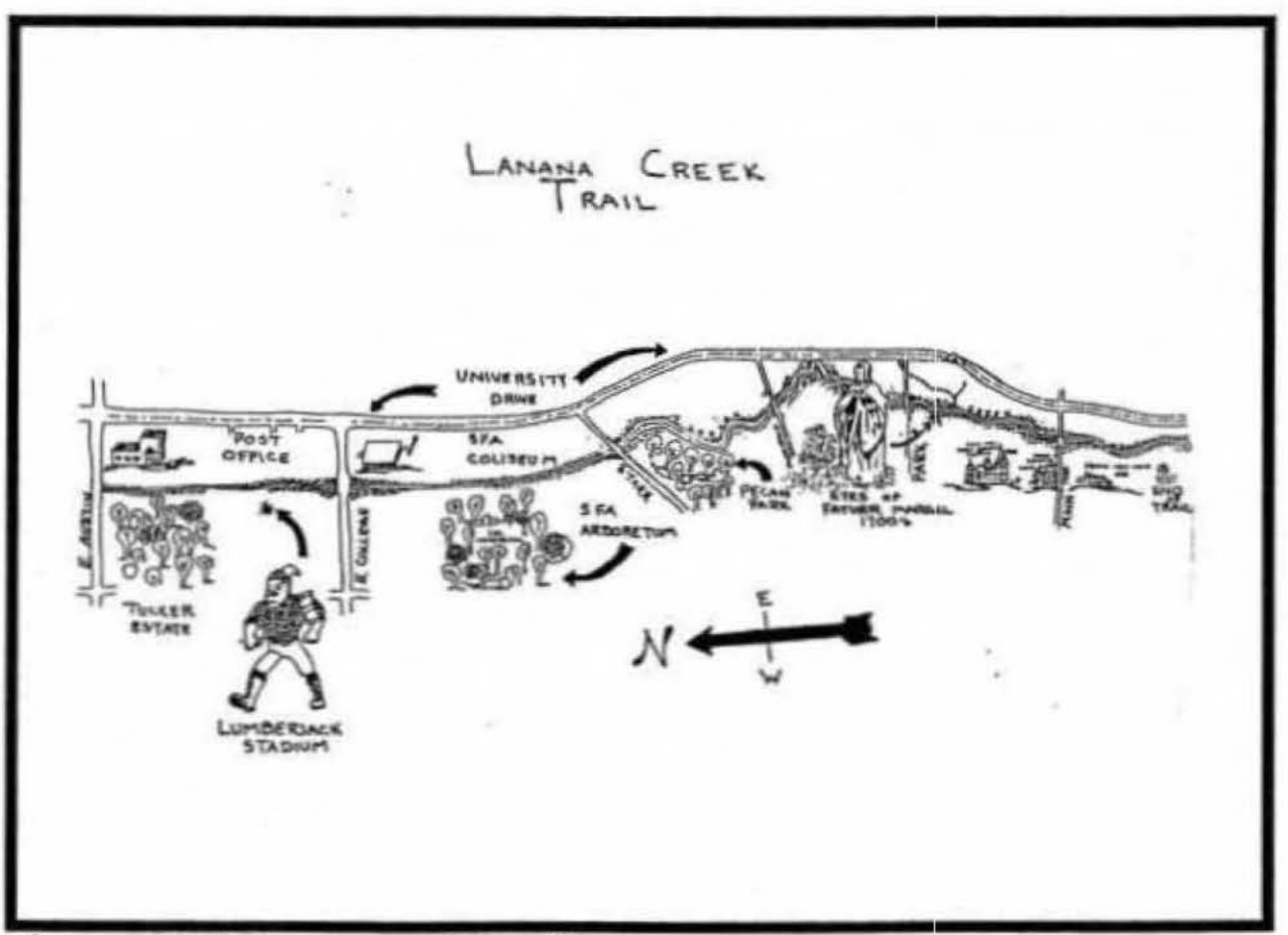

Figure 3. LaNana Creek Trail

the community. The trail currently winds its way from Main Street to Starr Avenue and includes long stretches of tremendous garden potential. The project has been accomplished via a heavy dose of volunteerism and the enthusiasm of its creator, Dr. Francis Abernethy. Meetings in the fall, 1988, led to a proposal presented to the City March 23, 1989; that proposal was accepted. The City agreed to take the trail under the Starr bridge. Four lanes wide at that point, the under-bridge situation demanded a good deal of adjustment to allow trail traffic. The City accepted a proposal to make this possible and the trail can now move north along the creek and the SFA Intramural Fields to enter the Arboretum at its southeast corner. The potential of this project is enormous and, as I have said many times before, "if this creek happened to reside in the northeast or on the west coast, it would have already been resurrected for the good of the citizenry." Numerous cities in Texas have added creek and river walks. Even our nearby neighbor, Lufkin, has an impressive and costly creek trail project underway. The LaNana project is a natural for tourism and easy access at several points along the trail is already in place. Because the creek meanders almost through the downtown region and is so close to our new Fredonia Convention Center, the trail should become a premier feature for visitors in our area. A city intent on providing visitors with plenty to do while in town cannot overlook the potential of a creek trail as a highly visible attraction. A nature trail could provide numerous hours of enjoyment. The fact that the SFA Arboretum happens to rest on the trail adds to the value of this concept.

Rick Rankin is the graduate research assistant on this project for two years. Rick is in the early stages of his site analysis and the placement of Dr. Michael Legg, Forestry, on Rick's committee provides the essential "recreation" expertise needed with a project of this grand scope. Rick's work will be similar to that of Chuck's except that it will include a heavy urban component. Rick will be developing a master plan for the entire trail. He will gain an understanding of the botany of the ecosystem and will characterize the site through other analytical measures. The goal is to create a timetable that will serve as the foundation for turning the creek into a resource that this community can be proud of. A part of the SFA Arboretum's enthusiasm for the project is based on a vision of what can be done. The arboretum could serve as an outstanding funnel for plant materials to the creek banks. As it is now, long stretches can be characterized as weedy and erosive with little aesthetic appeal. The intelligent development of overstory trees and understory shrubs and small trees along the trail takes a stubborn commitment to patience and an understanding of the rigors of floodplain ecology. The opportunity to heavily plant the trail to unique natives and showy cultivars, map their location, and mark their progress is hard to pass up. With the trail project, the arboretum would suddenly lose the "not enough space" problem, gain access to nearby, perpetual planting opportunities, and greatly impact the Nacogdoches landscape. This cooperative SFA/City project is an example of good will and the intelligent use of resources.

ENTRANCE ARCHWAYS are being installed in the Arboretum. Ms. Susan Elking, Art Department graduate student, is carving some rather massive treated beams that will soon grace our landscape as entrance gates. The twelve-inch by twelve-inch by twelve-foot beams are being carved and embellished to create three different and distinctive garden pieces. The gateways will mark the south entrance along LaNana Creek, the east entrance by the Agriculture and Art parking lot, and the entrance to the Herb garden, now under construction. Knowing that I had no idea of how to secure these heavy pieces to the ground, Dr. Bill Long, Agriculture Mechanics, jumped in with advice and help in designing the concrete pad the posts must rest on. In the back of our minds was the fact that the south entrance must be able to withstand flooding and current problems. When I asked Bill if our concrete pad and anchoring technique would work, he said,"it won't go anywhere." Enough said.

The ARBORETUM LOGO ON THE LETTERHEAD is another example of a good idea that ended up being a long story. The original rendering was the work of Ms. Cherie Cox, a former art and horticulture major. The project to create a "three-color" print included the original finding its way to Michigan, being dissected to create three templates, and this professor learning more about dots and blending dots than I really wanted to. Before we knew it a month or two had passed. At any rate, the final product is bound to be with us for a while. Of course, there were way too many of my friends and colleagues who thought the emblem was some kind of Christmas "thing" . . . after learning that it was to be the Arboretum emblem, most suggested that I use it only for a December mail-out.

The decision to go with Ilex opaca, the American Holly, as the "emblem" for the arboretum was based on the vision that the plant represents the character and mission of the SFASU Arboretum. This hardy native is slow to get going, doesn't need much, is tolerant of the abuses that life throws its way, and once well-established, the tree is stubborn and long-lived. Through all the seasons it scatters plant interest: red berries, evergreen, glossy leaves, and great bark color and pattern diversities. The American Holly can thrive in wet and dry soils, in shade and in sun. Another compelling reason behind the selection of this plant as the emblem rests in the fact that it deserves exploitation. Southern American holly varieties in no way approach the numbers of varieties released by northern states. Many of the northern varieties perform poorly in the heat and climate differences of the south. There is great opportunity in the south to select for berry, leaf shape, leaf size, tree shape and tree size differences. Of course, the same could be said of numerous southern natives. The red maple, yaupon, river birch, mayhaw, magnolia, and, yes, even the pawpaw has hosts of specimens worth finding, multiplying and scattering. The holly emblem represents that aspect of the arboretum mission.

THE TREE PLANTING ON THE SHELBY COUNTY COURTHOUSE SQUARE has resulted in a wide range of native trees, many rather uncommon, finding a new home in the middle of the busy Center, Texas square. Center is thirty miles to the east of Nacogdoches and is blessed with a one-hundred year old courthouse. The "Irish Castle" of this small town is a State Historical Landmark and is enjoying building and grounds renovations through the Shelby County Historical Commission. The Commission has given the SFA Arboretum a great deal of landscaping responsibility. The foundation planting is over a year old and is a tasteful, conservative design that features colonies of Cleyera, Indian Hawthorns, Carissa Holly, 'Bar Harbor' creeping Junipers, dwarf myrtles (Myrica pusila), Pittosporums, and Heavenly Bamboo. The corners are marked with Saucer Magnolias. Two forms of Yaupon, Ilex vomitoria, accent the doorways; a pendulous, weeping form marks two doorways and a bright-berried form accents the remaining two entrances.

The tree planting of the courthouse grounds was completed last fall and represents a rather interesting departure from typical city plantings. A wide range of natives were mixed into small five-tree colonies. The colonies were positioned between the outbuildings and the courthouse; this placement was chosen to avoid obstructing the view of the courthouse from the street and sidewalks that line the square. The six to twelve-foot container grown specimens were purchased from Will Fleming Nursery, Tomball, Texas. Will is an avid plant enthusiast and landscaper with a wonderful inventory of rare, uncommon, and unusual plants. Stephen F. Austin State University Horticulture Club students dug the holes and wrestled the plants into place after breaking up the root balls. No amendments were added to the planting hole. A heavy bark mulching finished the job. The soil was a surprise; it turned out to be a friable, loose sandy loam.

The foundation of the Records building on the southwest corner of the courtyard was lined with over two-hundred Virginia Sweetspires, Itea virginica, broken at the building corners with eight-foot container grown Parrotia persicas, an uncommon exotic with excellent bark interest, fall color, and tree form. Two specimen fastigate Yaupons break the harshness of the bare north side. The design was created to frame four memorial markers that were moved from other locations around the square. The movement of the memorial markers created a local scandal; a few citizens voiced strong objections about the Historical Commission's decision to consolidate the markers in their own garden. As the dust settles on this issue, three markers have been moved, one remains in place and the excitement of front page articles and numerous letters to the editor about the scandal have died away.

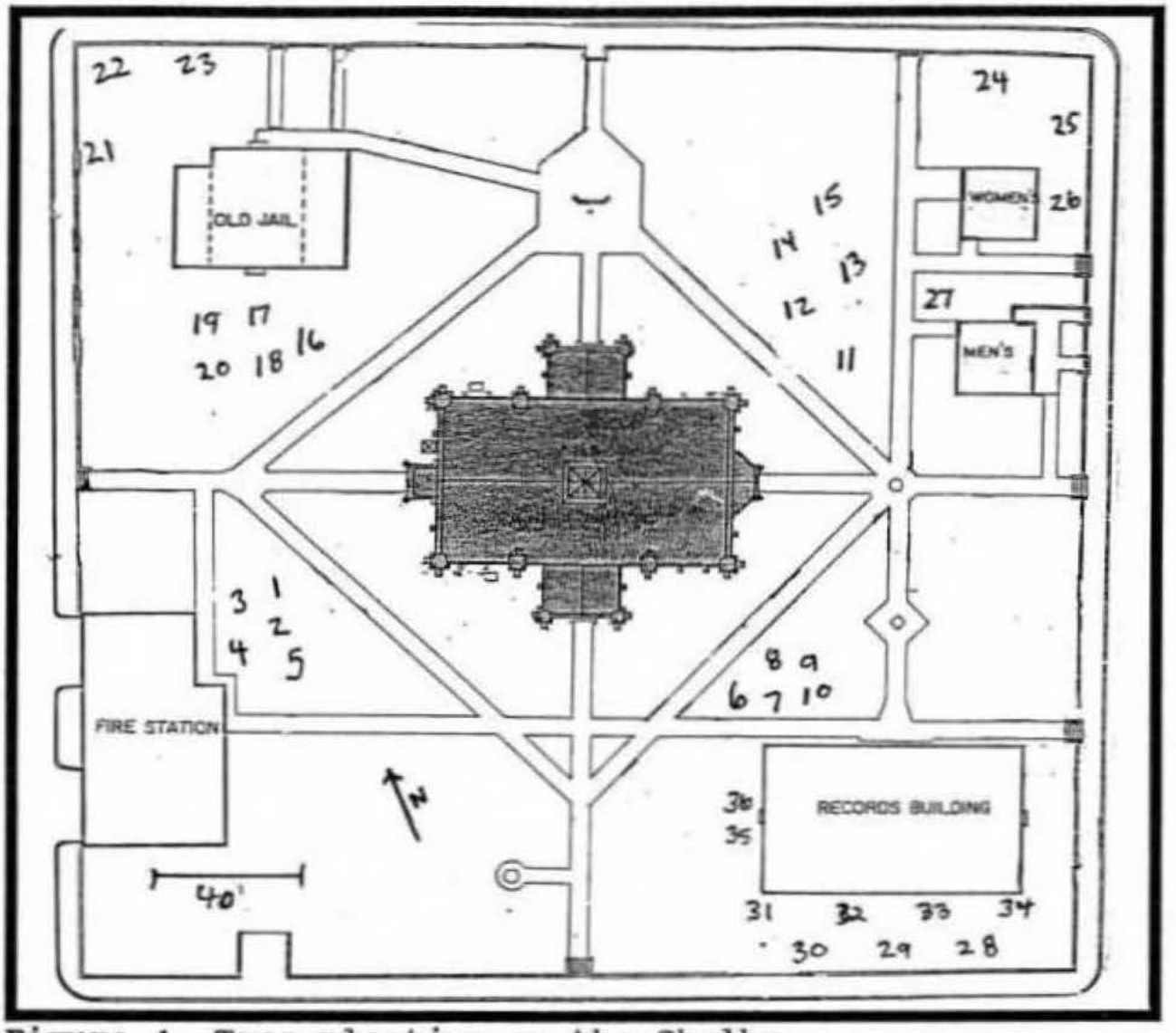

Figure 4. Tree planting on the Shelby County courthouse square

1. Carya illinoensis
2. Cornus florida
3. Acer leucoderme
4. Acer saccharum
5. Pinus palustris
6. Halesia diptera
7. Acer rubrum
8. Acer saccharum
9. Styrax americanus
10. Quercus muhlenbergii 'Brayii'
11. Styrax grandifolius
12. Acer saccharum
13. Magnolia virginia
14. Pinus glabra
15. Viburnum rufidulum
16. Quercus shumardii
17. Quercus alba
18. Acer saccharum
19. Cornus florida
20. Unknown maple
21. Quercus lyrata
22. Q. virginiana 'Seabrook'
23. Quercus nuttalli
24. Nyssa aquatica
25. Liriodendron tulipifera
26. Q. macrocarpa
27. Acer buergeranum
28. Taxodium distichum
29. Taxodium mucronatum
30. Taxodium ascendens

31-34. Parrotia persica

35-36. Ilex vomitoria 'Fleming'

Foundation planting at the Records builing is Itea virginica

ASIAN VEGETABLE PROJECT UPDATE

Visitors to the Arboretum this year are enjoying an opportunity to view a wide range of Asian vegetables in several scattered plots. Jon Anderson is the graduate research assistant on this interesting project. Because the project involves arboretum resources, I have attached a progress report, altered for the arboretum newsletter. This is another example of just what an arboretum is all about: a collection of woody and herbaceous plants assembled together for scientific and educational purposes. Because Jon's skills include quite an artistic bent, I have included his line drawings of the vegetables now under study; the sharp pen and ink illustrations are destined to be a part of his final thesis document. This two-year project was funded by a grant through the Agricultural Diversification Program of the Texas Department of Agriculture. TU Electric's Agribusiness sector also contributed to the project. Three grower "cooperators" are involved in the trials. The plots at SFA are located near the north perimeter and in several scattered vegetable patches throughout the arboretum. An Asian Vegetable Field Day, May 20, 1989, provided local growers a good look at the wide range of Asian vegetables that can be grown in our area of Texas. The following is an edited version of a progress report authored by Jon Anderson.

PROGRESS REPORT

This document reports the current status of the Asian Vegetable project six months into the study. An interesting network of the SFA Arboretum and three cooperating growers have planted a wide range of Asian vegetables. Our efforts have already yielded some room for optimism about the adaptation and marketability of several Asian vegetables. At this date much of the cool-season crop yield and quality data is in, and warm-season vegetables have been planted at four sites. This report is intended to trace the progress of the plots and present some very preliminary conclusions.

The project is actually larger than originally proposed (four sites) and more varieties were acquired than originally estimated (123 varieties at last count). Jon Anderson has two sites directly under his control (SFA Arboretum and the farm of George Millard on Woden Road). In spite of a busy spring start-up, Jon managed to assist the remaining two cooperators (Peavey Switch Farms, Lufkin, Texas, and Teare's Berry Farm near Huntsville, Texas) in the planting of warm-season varieties. In spite of winter and spring weather hardships at four locations, the project encompasses four sprinkler irrigated sites with excellent potential to provide a strong foundation of knowledge useful to growers.

Most of the seed provided to the project was donated from Sakata and Takkii Seed companies, both based in California. Johnny's Select Seeds, Pennsylvania, was also utilized as a source of legumes and melons. The research representatives provided our study with a mountain of vegetable variety seed packets, many

mailed direct from Japan to our office. A key point is that all of the varieties used in this project are easily obtained by any vegetable grower.

No definitive conclusions, of course, can be presented until all of the cool-season data has been tabled and analyzed. Some general observations and the current status of our spring trials is presented below:

Brassica pekinensis, Chinese Cabbage, is the most economically significant vegetable we are currently evaluating. The crop is moving commercially into Houston in 65 pound wire-bound crates with the most volume coming into the state from California. This spring's trial involved 31 varieties; only 12 varieties reached the harvest stage. Five or six varieties showed strong potential at Millard Farms and three surfaced at the SFA Arboretum as superior varieties. The remaining varieties succumbed to the main problem with spring-grown Brassicas: bolting. Increasing temperatures and day length encourage flowering which destroys market worth. One variety bolted at 28 days after planting. Seeded into the garden plots in late February, the emerging seedlings suffered from a heavy infestation of cabbage maggots which reduced percent stand in several replications; an insecticide was used to eliminate the problem. Crops were ready to harvest in early to mid-May. In spite of very heavy rains in April and May, yield and quality looked acceptable enough to put a small van and trailer load on the Houston market. With TDA assistance provided by Ms. Evelyn Harris, Mr. Millard, Barry Teare, and Jon Anderson met buyers on May 15, 1989, with several sample crates. The buyers were impressed with the quality and agreed to a sale. Two days later, the load sold for $13.00 per crate. California crates were bringing much more than that ($18.00 per crate) which is a reflection of just how strong a hold California has on buyers; this is a problem not peculiar to Asian vegetables.

Figure 5. Napa cabbage

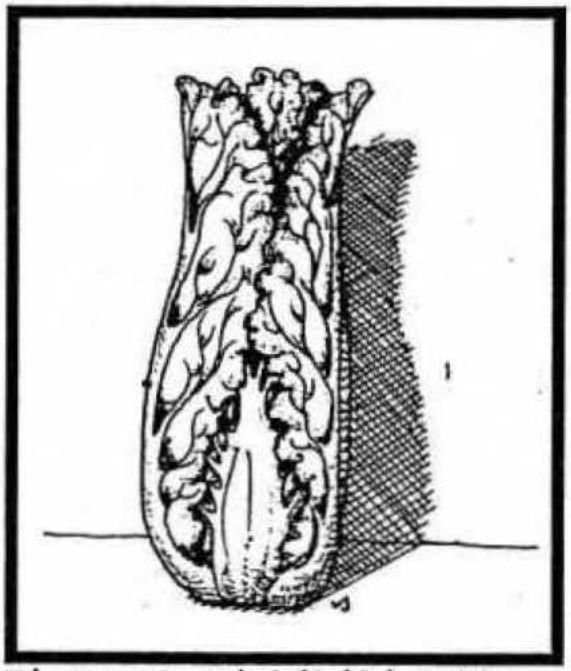

Figure 6. Michihili cabbage

There are two basic types of Chinese Cabbage, Napa and Michihili. The Napa cabbage is more widely grown and the marketable portion of the plant is a

barrel-shaped head of enveloping leaves. Michihili cabbage is an upright plant that produces a vase-shaped head with savoy leaves.

Chinese Cabbage certainly shows promise as a spring crop. Considering our past success with fall-grown broccoli and cauliflower, close relatives of Chinese cabbage, our chance of finding superior varieties should be good. While not all of the data has been analyzed, the best Napa cabbage yields and quality this spring came from four varieties: Napa 50, China Express, Sakata Selection # 8, and Tango. Jade Pagoda surfaced as the best Michihili cabbage variety.

Brassica alboglabra, Kaai-laan, is moving on the Houston market in surprising volumes. It is also known as Chinese broccoli. Kaai-laan is similar to conventional broccoli but sports a smaller stem and head that should be picked just as the first florets open; the plant can be harvested over a long time frame and is heat-resistant. The variety Green Lance appears to be adapted to our climate and continues to produce side shoots at this writing. Good percent stands throughout most plots indicate a degree of resistance to cabbage maggots.

Figure 7. Kaai-laan

Brassica narinosa, Tatsoi, is an unusual green that is widely used for salads and stir frying. It has thick spoon-shaped leaves with long white stems. Tatsoi produced vigorous plants and were bolt-resistant. The market movement of this crop is unknown.

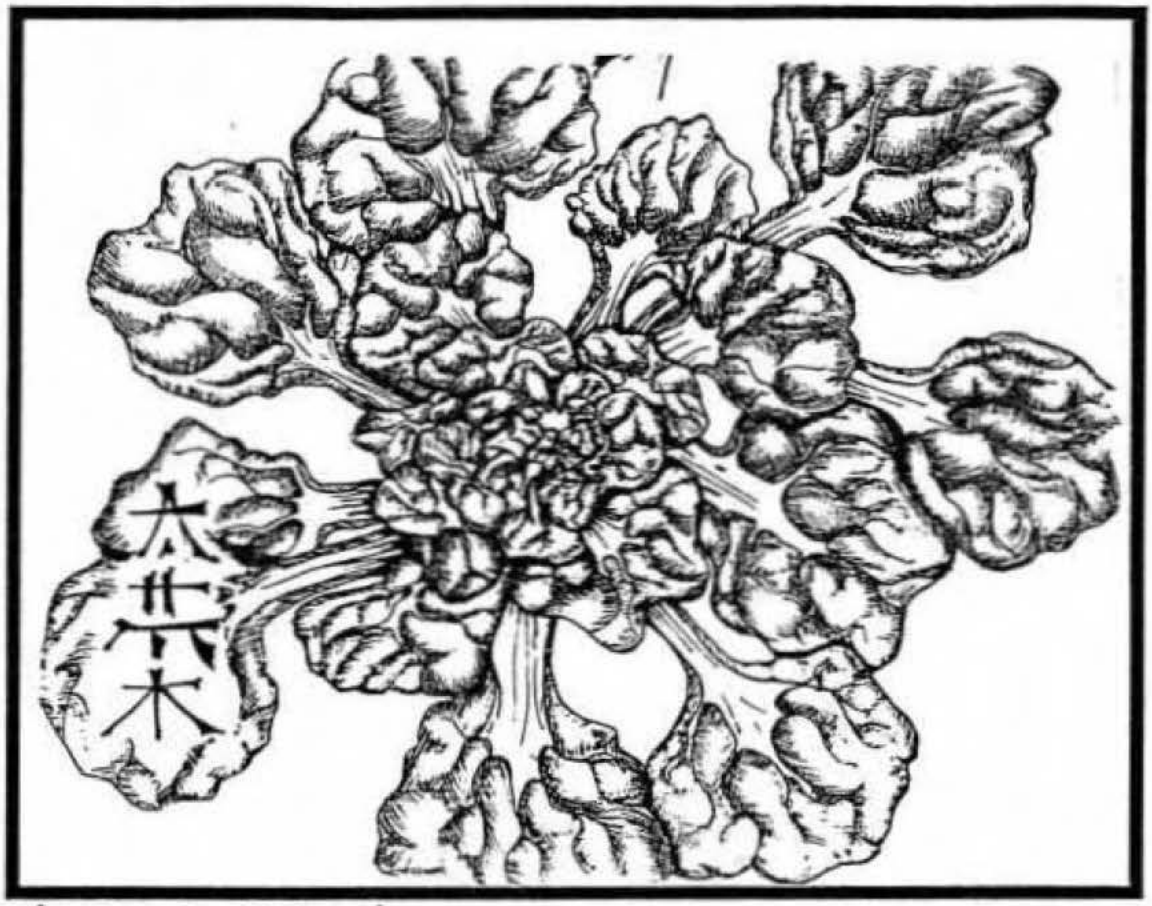

Figure 8. Tatsoi

Brassica juncea, mustard greens, were also tested with thirteen varieties in the trial. All of the open-pollinated varieties bolted early. The hybrids, however, delivered impressive yield and quality characteristics. Kyo Mizuna is a bizarre lance-leafed variety that delivered the highest yield in our greens trial. Kyo Mizuna has excellent ornamental potential as an edging or border plant and showed no bolting tendencies. This variety can be selectively harvested over a long time frame by leaving the young tender shoots at the crown of the plant. Miike Red Giant Mustard is a very spicy green that has deep-burgundy eighteen inch leaves; after a once-through heavy harvest in early May, the plants vigorously resprouted new shoots and leaves and now promising a second crop. Savanna, Miike Red Giant, Santo Round Leaved, and Kyo Mizuna look most promising.

Brassica chinensis, Pak Choi, is a plant widely grown for its distinctive white petioles and dark green glossy leaves. It is used nation-wide and is essential to most stir-fry dishes. All three varieties tested grew well and reached market size in 57 days. Cabbage maggot greatly reduced percent stand but once that was brought under control, the crop bounced back and performed impressively. Joi Choi and Lei Choi varieties are worthy of further testing.

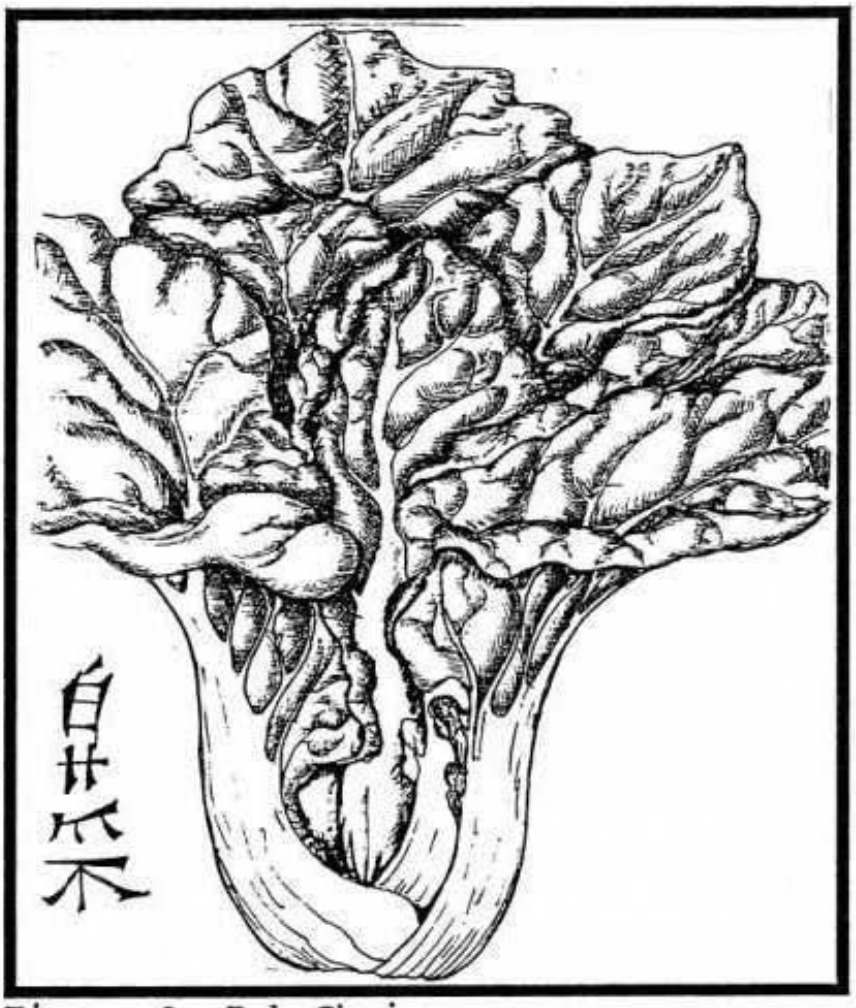

Figure 9. Pak-Choi

Brassica campestris, Tsoi-sim, is very similar to Kaai-laan in that the immature infloresence is the edible portion of the plant. Tsoi-sim is moving on the Houston market. Three varieties were tested and all bolted prematurely. They will be evaluated again this fall.

Brassica rapa, turnips, were also tested and compared favorably with turnip varieties commonly grown in our region of Texas. Two varieties, White Lady and Market Express, produced turnips of excellent flavor and visual appeal. In spite of percent stand problems, White Lady yielded over 13,000 pounds per acre. A second, late planting of White Lady turnips produced a marketable "green" crop within one month. Heat resistance appears strong.

Six varieties of snow peas were tested but because of time constraints, yield was not attempted. However, a visual vigor and yield rating indicated that "Tushukiki Spring" was worthy of

further testing. That variety produced vigorous mildew-resistant growth and was ranked as most productive. Snow peas and sugar peas are difficult to harvest; the pods are hidden and difficult to see. Coriandrum sativum, Cilantro, performed well at Mr. Millard's farm, with a first harvest producing equivalent to over 3400 pounds per acre. Although cilantro is a staple in Latin American and Mexican foods, the plant is indigenous to China. Absolutely no pest problems were present and two spring harvests are a likelihood in our area. Daikon, Chinese radish, failed at the Millard farm; none of the roots were marketable and despite being quite large the roots were heavily branched. Whether this was due to the sandy soil at Millard's plots or root insect problems is uncertain. At the SFA Arboretum several Daikon varieties produced marketable radishes although the percentages were lower than fifty percent of total yield.

We are testing many different warm-season crops. Several types of squash, tomatoes, and melons are producing a wide range of interesting potentially well-adapted vegetables. Seven varieties of eggplant are under test and include white, green, and dark-purple fruited types. Chinese yardlong bean really does produce yard-long beans and quickly overran its trellis space.

Figure 10. Chinese eggplant

Figure 11. Yardlong bean

One of the most interesting summer vegetables in our collection is bitter melon, Momordica charantia. The plant is a graceful, climbing vine. The fruits are characterized by longitudinal rows of tubercles of varying size. We are evaluating two varieties of bitter melon: long and short-fruited. Both varieties have produced quality fruits and shown excellent vigor.

Bitter melon is virtually effortless to grow. We have not observed fungal or insect problems, in spite of a very wet year. Bitter melon is consumed widedly in China, Japan, and Indonesia. The unripened fruit is used; bitterness increases with ripening. The fruits are first soaked in salt water to reduce bitterness, then stuffed or used as a component of chop suey.

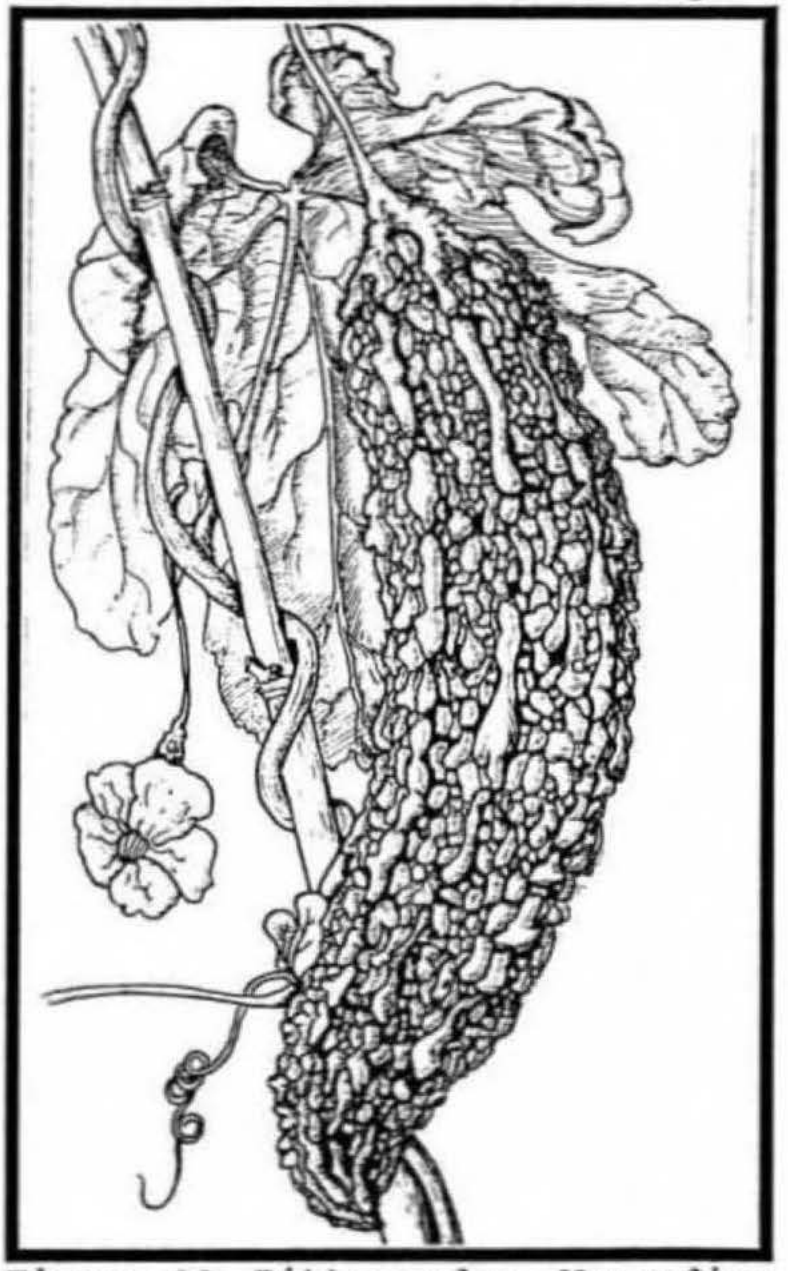

Figure 12. Bitter melon, Momordica charantia

Conclusions: It's too early, of course, to speculate on the results of this study. Only until two full growing seasons have been tested will enough be known to make recommendations to growers. A few preliminary observations are warranted. The Chinese cabbages appear to hold the most promise in a market sense; they are already moving in big volumes on the Houston market, are well-recognized and many buyers are looking for quality product. The reception our small "load" received on the Houston market was encouraging. The size, quality, and yield of several of the Napa and Michihili cabbage varieties gives the project plenty of room for optimism. The small market test in Houston was certainly an eye-opener in terms of price, how product moves, what are the volumes involved, and what are the quality nuances associated with acceptable product. With good stands of Chinese Cabbage, yields of 300 crates and higher per acre are possible; the best information we have from our sources is that product normally moves at $10 to $18 per crate; price depends on what is happening in California.

TRAVEL

MEXICO TRIP: During the Thanksgiving, 1988, break this professor enjoyed a botanical expedition to Mexico. The team included Mr. Lynn Lowrey, Ted Doremus, Alice Staub, John Fairey, Carl Schoffield, and Meg Hoey. Lynn is a 1940 LSU horticulture graduate whose plant contributions to southern and western landscape thought are legend. Alice Staub is a delightful landscape designer from Houston; her gardens have been featured in garden periodicals and she maintains a diverse and striking garden of her own. Ted is the owner of a wholesale nursery near Warren, Texas. Ted carries a wonderful wide range of unusual and uncommon plant materials and recently hired one of our recent graduates, Mr. Mark Bronstad. Mark was quick to take to native plants and the use of diversity in landscape themes. Dr. John Fairey is a Landscape Architect and Professor from Texas A & M University. Carl manages John's garden, also featured in garden periodicals. The computer inventory of their collection is incredible and makes their garden one of the best in the state in terms of diversity and plant interest.

The trip began November 11, 1988, with the long run to the Mexico border at Laredo. After struggling though insurance and travel forms and some difficult border guards we finally managed to arrive at Bustamente late that night. The morning was spent creeping in our four-wheels through washed-out canyon trails; Hurricane Gloria's wrath had left its strong mark over much of northeastern Mexico. The group inspected the Myrospermum sousanum stand near Bustamente. Bumelia angustifolia, Salvias, wallflowers, the Mexican olive, Cordia boissieri, pecans, an interesting shrub Lynn recognized as Godmania species, and Acacias are only a few of the plants inspected near the Myrospermum colony. Bustamente canyon provides an easily traversed botanical expedition in most years but our trek up this canyon was stopped quickly by the evidence of Hurricane Gloria's wrath. Great numbers of trees were scattered down the canyon like matchsticks; the older relics suffered the greatest losses. Quercus polymorpha suffered little; it prefers to prosper along the extreme edge of flood waters. The Sycamores, Mexican cypresses, and other flood way inhabitants succumbed to raging mountain runoffs created from over twenty inches of rain left by the storm.

Our caravan moved south on highway 85, through Monterrey, and on to Sabinas Hidalgo. A roadside Celtis pallida stand was ripe with orange berries. Meg was enjoying her first expedition to Mexico and seeing up close tree poinsettias, bougainvilleas, papayas, and avocados. We collected seed of an awesome stand of Taxodium mucronatum, the Montezuma cypress, in a roadside park near Sabinas Hidalgo. We collected seed from Salvia ballotaeflora, a shrubby, much-branched, blue-flowered salvia to six feet. Xylosma biepharodes is an attractive evergreen shrub, irregularly branched to twenty feet, and a plant that shows strong ornamental potential. We gathered great amounts of the spider-like seed of Cowania mexicana and C. ericaefolia, both questionable in terms of adaptation to our east Texas clime. Most impressive were the

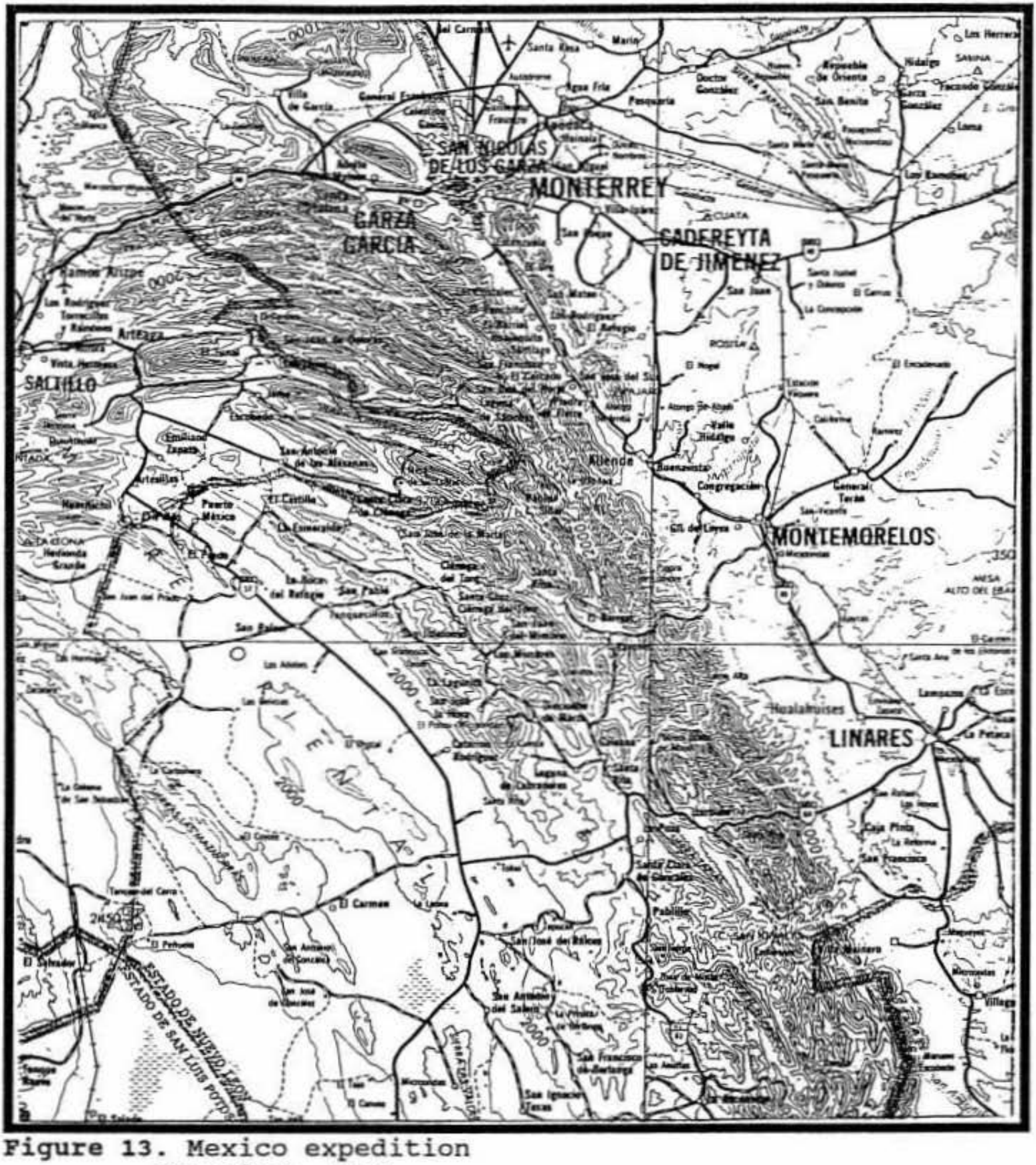

Figure 13. Mexico expedition
November, 1988

stands of Mahonia trifoliata, another evergreen shrub to ten feet with stiff, spiney, holly-like trifoliate leaves. Bauhinia congesta, a shrubby legume called the orchid tree, were often companion plants along roadsides. Dalea gregii makes a striking, blue-flowered, low ground cover throughout much of the scrub forest in this region.

At El Cercado we headed east. The expedition made a quick excursion around Horsetail Falls (Colade Caballo) west of Monterrey and then headed further west into the mountains, all the time wondering if the trail would hold out. Along the gravelly river beds, sycamores, Platanus mexicana, formed tree colonies evidently able to resist raging floods. With increasing elevation, Montezuma pine becomes the common tree. Abies religiosa, although present here and there at the higher elevations, is certainly less prevalent. In an eery stretch known as Taxus canyon, the botany shifts gears dramatically. We discovered a small colony of Ilex decidua, the deciduous holly, and loaded up on seed of this East Texas counterpart. Taxus globosa, a beautiful true yew, rare even in Mexico, harbored only a few fruit and these were collected for seed. Cornus unbiniana, the Mexico dogwood, was also fruitless but very impressive thirty-foot trees demanded that we return later for seed.

The raging Santa Catarina river provided a wonderful backdrop for our late arrival at the hotel of La Cenega. Seed or cutting collections or photograph were made of Acer negundo, a Platanus species, Juniperus flaccida, Fraxinus greggii, Rhus macrophylla, Foresteria racemosa, Leucaena species, Bauhinia macranthera, and some Cercis specimens with very small, undulate leaves. The trail turns south at the small village of San Juan Batista and enters a dark canyon with steep rocky walls. Seed of a Cobea, a beautiful vine, and a Justica with bright orange flowers was collected. Flourensia laurifolia seed was gathered as was the seed from several unidentified moss-laden oak species. This section of the canyon was blessed with agaves, manfredas, yuccas, nolinas, Dasylirions, other succulents, ferns, grasses, poppies, salvias, penstemons, and several composites of uncommon beauty. A small colony of redbuds, Cercis texana (?), was laden with seedpods and made an easy collection spot. As the road wanders west, agricultural land begins to dominate the scene. Mexican poppies, their yellow flowers waving, dot the roadsides. Seed was collected from an interesting Carya, similar to tomentosa, the shagbark hickory. This small colony at 6,000 feet elevation was root-suckering heavily and leaf terminals were heavily pubescent. Seed from one of the most beautiful of all ashes, Fraxinus cuspidata, was collected. Seed from Cupressus mexicana, several red-flowered Salvias, and a giant Buddleia were collected. At 7,200 feet a blue-flowered Ceanothus and the deep-pink flowered Cowania was collected. Near Los Lirios, Dahlia imperialis seed was gathered from several village homescapes. For anyone used to the two and three foot tall garden Dahlias in the United States, this five foot tall species. As we approach the village of Jaime, the roadsides are predominantly oak-lined. Mahonia gracilis, a beautiful yellow-flowered species, was also found in a few isolated colonies along the road to Saltillo.

The next morning was spent with Dr. Valdez, Director of the Botanical Garden at the Agricultural University, Saltillo. This is one of the oldest botanical gardens in Mexico with an excellent collection of vegetation from the Chihuaha desert. To the west of the highway that runs south of Saltillo is an extant population of Juniperus pinchotti; some of these tree relics are two thousand

years old and were described in literature that dates back to the time of Cortez's adventures. Seed from a truly massive, crag-headed, five-foot diameter tree was collected. On our way to Jino de Potosi our caravan turned east to explore the trail that leads to Galeana. Cuttings of an unusual Osmanthus were collected; while this specimen was similar to Osmanthus americanus, the leaves were larger and less lanceolate. A red-stemmed plant that our group originally suspected as a Viburnum was collected; this plant turned out to be a Cornus species. The small colony found on the way up the canyon was under heavy grazing pressure; the natives drive goats and cattle throughout the mountains and, as a matter of habit, they hack and bend over small trees that are above grazing height. Also collected: Litsea, Garrya, and a Penstemon. El Potosi reaches over 12,000 feet and commands an incredible view of the remote valleys and mountains in this poorly understood region of Mexico. At the highest elevations, pines act as an overstory for groundcover oak species. It seems that every mountain side has its own kind of oak: truly a genetic motherload of Quercus species. After a late night arrival at Matehuala and some scrambling around to find a room we finally settled into a hard sleep.

Our caravan made its way to the town of Dr. Arroyo. Seed of Dasylirion longissima was on our list from this region and luck was with us; the seed pods were full and we had beat the weevils to their meal. A Ptelea with small leaves was collected from a dry, rocky slope. Chilopsis linearis, the desert willow, finds its home in wash areas along this road. South of Linares, seed of Diospyros texana and Fraxinus cuspidata was gathered. The further east along this road one travels, the lusher the vegetation. Just as we broke from the mountain road, we hiked into a stand of rare cycads. Diospyros palmerii was loaded with seed and we gathered a large sack of this small-leaved persimmon species.

Finally, our expedition gathered together to clean seed, wash plants, and eliminate any signs of insect or disease infestation prior to inspection at the APHIS offices at the border. Even with legitimate plant import permits, good labelling, and clean seed, the chance of losing part of a seed collection trip is always there. This time, however, the inspector allowed nearly all of our material through.

Expeditions of this type are examples of Arboretum outreach activities. The urgency of the work is based on the ever-increasing degradation of the biodiversity of the mountain ranges of Mexico. Humans and their livestock are responsible and environmental protection laws, while they exist, are not enforced. The arboretum's "Mexico" interest is based on the fact that much of the San Madre Oriental Range flora is made up of interesting counterparts to common trees and shrubs in our area of East Texas. The genotypes in Mexico enjoyed thousands of years of separate evolution and offer scientists today an interesting chance to study genetic drift, evolution, and adaptation.

Excellent topographical and trail maps of Mexico are available from the Flat Earth Map Company, PO Box 8424, Austin, Texas 78713 (telephone 512-467-2283).

SILKY CAMELLIA UPDATE: When Osa Hall of Burkeville dropped me a letter in early May, 1989, writing that the silky camellia colony was in bloom and to come on down, I jumped at the opportunity to inspect this rare plant again. Stewartia malecodendron is beautiful in bloom. The flowers were just over three inches wide, white with purple stamens and quite distinctive. The good news is that Osa Hall had only the week before found the second colony within one mile of the stand considered to be the only stand in Texas. This plant is always uncommon throughout the South, usually existing in small, isolated colonies. Osa made this important find only a few days prior to our visit. He had forded Little Cow Creek in an attempt to reach what was thought of as the only known colony; that colony required a confusing two-mile walk through unmarked dense underbrush and Osa was looking for a quicker route. The newly-discovered colony is interesting in that the trees in this group are also in rather dense shade and rest on a ten-foot knoll just above the Little Cow Creek flood plain. On the day of our visit the trees were almost past bloom with only a few remaining flowers; spent petals layered the forest floor. This unique plant is reported to be quite difficult to grow and deserves further study. A soil sample taken from the zero to six-inch depth revealed an acid loamy sand with a pH of 5.0, a buffer pH of 7.58, and low levels of macronutrients.

Element	PPM
Phosphorus	3
Potassium	50
Calcium	126
Magnesium	33
Iron	44
Manganese	11
Zinc	0.72
Copper	0.13

This was my first time to marvel at vast sweetspire colonies in bloom. The three to four-foot shrubs line the sandy creek banks and bottomland seeps. Itea virginica is a much underutilized native shrub that I have praised many times before.

A return trip to the site in July, 1989, netted a good collection of seed from both colonies. It is interesting that the larger colony netted fruit capsules that averaged over six plump and healthy seed; the smaller colony produced fruit that was poorly filled with only two or three seed per capsule. Is this the result of site differences or low population numbers reducing fertility? Chuck Martindale, Rick Rankin, and I are planning a fall trip to run a vegetative transect of the area to fully describe botanically the plant neighbors in the silky camellias home.

GARDENS OF THE SOUTH: A June 18-25, 1989, vacation to Alabama afforded a chance to enjoy several important gardens in the South.

Mynelle Gardens is owned and operated by the city of Jackson, Mississippi (telephone: 601-960-1894) and is located just off Clinton boulevard. The six-acre garden seems larger than it is. This is primarily a shade garden and excellent collections of hostas, ferns, lilies and irises flow throughout the garden. Other features include a small All-American Selection garden, a Camellia trail, an Oriental island, and a Wedding lawn. This is a garden well worth the visit.

The Duff Green and McRaven Mansion landscapes in Vicksburg, Mississippi are must stops for southern history buffs. Both stops are just off Washington Street and provide visitors with the flavor of the old South. The over 12,000 square foot Duff Green Mansion lies in Vicksburg's Historic District at 1114 First East Street (telephone: 601-636-6968). The mansion is considered to be one of the finest examples of Paladian Architecture in the south and includes eight guest rooms for overnight bed and breakfast accommodations. The gardens, though small, are home to many old tree relics. With a history going back to plantations in the 1750's, McRaven (telephone: 601-636-1663) boasts of old Ginkgos, cypresses, and magnolias. The original pre-Civil war strolling gardens date from 1849 and were the scene of a famous murder, a confederate campsite, and served as a field hospital. Battle scars and shell fragments still remain and the mansion has been exquisitely restored to Civil War days.

The University of Alabama Arboretum, Tuscaloosa, Alabama, lies about three miles east of the campus, near the intersection of Highway 15E and University Boulevard. The sixty-acre arboretum is under the supervision of the Biology Department and enjoys most of the fiscal problems associated with university arboretums. Dr. Gable, Biology, is the current Director and Dr. Mary Jo Modica, Horticultural Sciences, is the Assistant Director. Lewis Cooper, Arboretum manager, bears the brunt of the Arboretum workload. I was surprised to learn that the garden relied on a "no-chemical" approach primarily because of the sensibilities of the Assistant Director. Without Roundup herbicide, a mainstay of most arboretum weed control efforts, the arboretum has relied on work-study students and volunteers to fight weeds. Honeysuckle vine invasions into the collections led to the creation of an annual successful "rip the vines and dine" Saturday event in the summer! Most of the garden is a pristine woodland dissected by meandering trails and interpretive signs. A trail guide easily leads a visitor through ten markers that describe the ecology at each location. The arboretum is divided into four sections: 1) the native woodland with over four miles of trails. 2) the experimental garden demonstrates organic gardening techniques for family vegetable patches and displays new varieties, unusual types, and culinary herbs, 3) the ornamental section displays native and exotic trees and shrubs and includes several rare types, 4) the wildflower garden displays over 250 native Alabama wildflowers, most labelled,

and all attractively displayed. The daylily display was impressive and recently installed. Never overestimate the impact a local and enthusiastic Daylily society group can have on a nearby arboretum. A wetland garden, currently under construction, involves rock-lined pools and seepy soils displaying wetland plant communities of Alabama. I was most impressed with the vigor of several Silky Camellias, Stewartia malecodendron. A Magnlia macrophylla was so vigorous that the foliage carried a purple hue to the unfolding shoot tips.

A must stop in Birmingham, Alabama, is the Birmingham Botanical Gardens (2612 Lane Park Road, telephone: 205-879-1227). The sixty-eight acres is managed by the City of Birmingham's Park and Recreation Board and numerous volunteer groups. The Garden Center includes shops, information booths, educational displays and is in the business of supporting weddings, conventions, and meetings. Facing the Garden Center are numerous formal gardens that lend a country club flavor to the gardens. Further into the woodland, the tone softens and blankets the remaining theme gardens. A seven-acre Japanese Garden is one of the best in the South. The conservatory is the largest in Alabama. I was impressed with the Thompson Enthusiast Garden that features creative uses of small garden spaces. The Bruno vegetable garden was just getting over a cutworm attack and carried an unappealing insecticide dust over all the plants; in this day and time most arboretums have switched to less deadly poisons and usually avoid dusts that detract from visual appeal. The Hess Camellia Garden and adjacent Curry Rhododendron Garden are bound to be impressive in March and April. The garden includes a well-labelled ravine with steep slopes and steps that take a visitor through a rock-strewn woodland glen called the Fern Glade. Other impressive gardens abound. A Garden for Southern Living displays continuous seasonal color through the intelligent use of herbaceous perennials and is completely maintained by officers, writers, and editors in the Southern Living Corporation.

Noccalula Falls Botanic Garden in Gadsden, Alabama, is accented by a thundering one-hundred foot waterfall. The gardens are under development and the central feature will soon be a rocky slope featuring bulbs and herbaceous perennials. Old historic cabins and barns have been resited here and well-interpreted.

The Donald E. Davis Arboretum of Auburn University, Auburn, Alabama, borders the main campus and was dedicated in 1963. The eight acres is home to an excellent collection of mature native trees which are easy to locate by a trail guide brochure. Many of the trees were planted in the early years of the Arboretum under the direction of Dr. Donald Davis. Mr. Robert Rush, Arboretum Manager, works under the umbrella of the Botany and Microbiology Department. Robert explained that the Arboretum was operating on about eight thousand dollars per year; that amount is heavily allocated to a healthy student work study pool drawn from the Horticultural program, one of the best in the South. The Arboretum is currently being inventoried and mapped and, like so many

arboretums, has a background of erratic record-keeping that makes much of the collection poorly documented with uncertain provenance data. The arboretum has been awarded six additional acres to work with and a Master plan is being developed for the area. The arboretum is expanding its tree and shrub collection and has resisted the temptation to add color-intense beds of annuals and perennials. In spite of a heavy downpour, dark clouds, and soggy trails, the garden was a beautiful respite on the way to Montgomery, Alabama.

Jasmine Hill Garden and Outdoor Museum is on Jasmine Hill Road off Highway 231 just to the north and east of Montgomery, Alabama (telephone: 205-567-6463). Jasmine Hill was created in the 1930's by an Alabama couple, Ben and Mary Fitzpatrick, after their retirement as "a little corner of Greece". The gardens were built as a display yard for over thirty art objects collected by the Fitzpatrick couple on numerous collection trips to Greece. The statuary includes a statuette of Athena, a bronze bust of Socrates, Lions of Delos, the pouting maiden, Venus of Crene, Dying Gaul, the fisherman, and many others. Marble benches and heavy, black wrought iron garden chairs are tucked in numerous cloistered corners to provide resting spots for visitors. The garden was designed to frame garden pieces; long brick alleys are lined by towering Magnolias, crepe myrtles, and native trees. Perhaps the most striking feature of this garden is an exact copy of what remains of the Temple of Hara. The temple at Olympia, Greece, is considered to be one of the oldest in Greece; this reproduction departs from the original only with the inclusion of a large aquatic pool.

The William Bartram Arboretum is located in the Fort Toulouse-Jackson Park near Wetumpka, Alabama and is named in honor of the famous botanist. William Bartram, a well-known naturalist and personal friend of Ben Franklin, traversed Alabama collecting specimens of plants and recording his observations. He visited the ruins of Fort Toulouse in 1776 and wrote, "This is perhaps one of the most eligible situations for a city in the world, a level plain between the conflux of two majestic rivers . . ." The arboretum is a product of the Garden Clubs of America, Inc. and the Alabama Historical Commission. The most striking aspect of the arboretum is the wooden boardwalk that winds its way through the woods, bogs, and wildflower plantings of the garden. The garden is completely wheelchair-negotiable and quite slippery in wet weather. The arboretum is enhanced by numerous interpretive signs that describe the ecology and the history of the site. Record rains during my visit had driven Tallapoosa river flood waters over most of the boardwalk trail. It's reassuring to know that the SFA Arboretum is not the only garden plagued with periodic floods.

Southern Living Corporation has a must-see retail garden center in Montgomery, Alabama. An excellent collection of container trees and shrubs is backdropped by an outstanding Japanese garden. The retail store contains just about everything that can make living outdoors fun and easy.

The Bellingrath Gardens and Home are a must stop at Theodore, Alabama, just to the east of Mobile. The sixty-five acres of formal gardens are meticulously cared for and features waves of seasonal color. Open from 7:00 a.m. till sunset every day of the year, the garden is a colorful and classy garden of the old south (telephone: 205-973-2217).

Rick Rank and I made a late July day-trip to the private garden of John Fairey and Carl Schoenfeld, Waller, Texas. The garden was an eye-opener. John has carved out a seven-acre horticultural paradise that emphasizes the diversity, cunning, and persistence of a master gardener. In spite of rather difficult site conditions, the garden displays a wide range of interesting plants not commonly seen in any landscape. John is a professor of Landscape Architecture at Texas A & M University and brings design skills to plant combinations. Carl seems to know just about every plant that comes his way and is eager to learn a new one, anytime, anywhere. He manages Yucca-Do Nursery, a mail-order nursery that is a part of this private garden. For a catalog, their address is PO Box 655, Waller, Texas 77484. The nursery features many uncommon plants from the mountains of Mexico that would be well-suited to a dry, rock garden. The garden itself is dissected by a creek that, like our own LaNana, tends to rage out of control following thunderstorms. Their strategy to fight this occasional monster has been to establish cypresses, magnolias and other wetland lovers on both banks of the creek. The tactic is working. To break the current in the flood plain, they have built a curving fence of deeply-set treated posts, each touching the next, that pushes the flood waters back into the main channel. Bark mulch is a mainstay in this garden; azaleas and camellias have prospered. In flood-prone areas of the garden, bark mulch is held in place by a screen staked around the crown of the plant! Persistence has paid off and the garden sports what I think is the second or third largest collection of plants in the state. The most important contribution this garden is making to the world of Texas horticulture is the focus given to rare and endangered plants; many of the contributions from Mexico have never been tested outside of their dwindling habitat and deserve our respect and multiplication.

We are in the process of moving all of the plant inventory into dBase IV from a PC-file system. With the new system we can quickly sort and retrieve any plants in the collection. Unfortunately, Leslie Dale and I are still struggling into the awesome world of databases and we've run into a few glitches in making that transfer. Time is on our side and I will try to get that list in the next newsletter: target date: December, 1989.

Enjoy the arboretum! I knew we had made the big time when early one Sunday morning I bumped into a couple being photographed professionally while decked out in wedding tux and bridal gown. Bring a friend!