

JC Raulston Arboretum

Friends of the Arboretum Newsletter

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J. C. Raulston

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COMING EVENTS:

JANUARY 3-6 (SUNDAY THROUGH TUESDAY) N. C. ASSOCIATION OF NURSERYMEN SHORT

COURSE AND TRADE SHOW. To be held at the Benton Convention Center in downtown Winston-Salem. Registration at the convention center upon arrival.

JANUARY 6 (TUESDAY) SLIDE SHOW - SPECIAL GUEST LECTURE. We have a treat in store with a special program by Dr. Ed Hasselkus from the University of Wisconsin who I luckily "captured" to bring here while he was "in the area" to present a lecture at a nurserymen's convention in Norfolk, Va. Dr. Hasselkus is a noted teacher and researcher of woody plants who has developed a magnificent campus arboretum at the University of Wisconsin in Madison (60 acres for tree species plantings). He will speak to us on his observations of trees and shrubs for use in the landscape. Our meeting will be earlier than usual at 7:00 PM in room 159 of Kilgore Hall as we have to leave immediately after the talk and drive to Norfolk where he is first on the program at 8:00 AM the following morning!

JANUARY 30-31 (FRIDAY AND SATURDAY) - N.C. HERB ASSOCIATION'S ANNUAL CONFERENCE. The N. C. Herb Association was formed during 1985 by a group of commercial herb growers and herb enthusiasts to promote the production, marketing, and use of herbs and herbal products. The first conference last year had over 250 people in attendance. The 1986 meeting will be held at the Sheraton Hotel in Greensboro with a wide variety of topics for all interests. For more information on the conference or the association please contact:

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FEBRUARY 6 (FRIDAY) SLIDE SHOW - GARDEN HIGHLIGHTS OF 1986. Similar to the show we did last August, I will present slides from travels and happenings in the arboretum from August through December of last year. These will include Portland, Seattle, Vancouver, Chicago, Boston, D. C., Callaway Gardens, Texas, NYC and Long Island gardens (Storm King Art Center was fantastic and a private "African" garden was most unusual and beautiful), and Southern California. Shall we call this an eclectic presentation?? We'll meet early again at 7:00 PM in room 159 of Kilgore Hall since it gets dark so early (and I want to get home to watch L. A. Law).

FEBRUARY 19 (THURSDAY) SLIDE SHOW - SPECIAL GUEST LECTURE. Through the financial assistance of Pi Alpha Xi I have been able to book Mr. Kendall Gambrill of Washington State to present a program to our group. He was the former acting director of the Rhododendron Species Foundation who assembled most of the incredible collection of plants in that garden during its formative years.

He now operates a speciality business of garden design and installation, rare plant acquisition, and foreign garden tours. He has a magnificent personal garden of collector rarities which has been featured in *Sunset Magazine*. He will lecture to us on a topic I've never seen presented before on a part of the world rarely experienced by U. S. plantsmen - The Gardens and Plants of Russia, Eastern Europe and Scandinavia. We will meet at 8:00 PM in 3712 Bostian Hall on the NCSU campus.

MARCH 3 (WEDNESDAY) - DAVIDSON COLLEGE HORTICULTURAL SYMPOSIUM. Each year this program produces an excellent opportunity to learn and meet a wide variety of speakers. Registration information may be obtained from Phyllis Herring, P. O. Box 372, Davidson, NC 28036.

MARCH 25 (WEDNESDAY) SLIDE SHOW - SPECIAL GUEST LECTURE. This will have to be left as a MYSTERY SPEAKER as I am negotiating with two different speakers at the time this is going out - but we will definitely have a speaker - and an outstanding one as well. I will be able to announce the identity at earlier lectures during the spring. We'll meet at 8:00 PM in room 159 Kilgore Hall.

APRIL 21 (TUESDAY) SLIDE SHOW - SPECIAL GUEST LECTURE. Many of you have seen the wonderful catalog of Gossler Farms which I have promoted so many times as an excellent source of outstanding uncommon plants. It is the best source of magnolia cultivars in the U.S. and the owner/manager Mr. Roger Gossler will be in North Carolina during this week to attend the national meeting of the American Magnolia Society which will be held in Hendersonville on April 24-25. He has agreed to present a lecture on plans of their nursery and outstanding rare plants to consider using in the landscape. We'll meet at 8:00 PM in room 159 Kilgore Hall.

MAY 15-16 (FRIDAY AND SATURDAY) - MORDECAI GARDEN SYMPOSIUM. Again an outstanding program each year and highly recommended. Registration information will be available in the next issue of the newsletter.

JUNE 24-JULY 11 - THE NCSU Arboretum (now the JC Raulston Arboretum) NURSERY/LANDSCAPE TOUR OF GERMANY. Roughly each two years I take a group of nursery/landscape professionals and serious amateurs to some area of special merit for the horticultural industry in that area. Previous trips have included the Pacific NW, England-Ireland, Holland-Germany-Scandinavia, California and shorter trips on the east coast. I have long wanted to share awareness of the extraordinary German plant world. The nursery and landscape industry there is probably the most technical and advanced in the world, and certainly an industry leader where most contemporary innovations arise and move around the world. They have the finest nation-wide set of publically funded public gardens and arboreta in the world with extremely fine public gardens in even the smaller communities. Yet, we know less about these gardens and industries in the U. S. than other areas - primarily because of language barriers. This trip will focus on significant new public landscapes, botanic gardens and arboreta, nurseries, and landscape operations. Though we'll certainly take time to find a pastry shop or two, it will not be a tour for those wanting 8 hours of shopping and 6 cathedrals a day. Definitely for strong spirited and hardy individuals. First priority is given to industry professionals, and any other space open will be made available to others on a first-come basis. If you are interested in joining this tour please request further information from me.

NOTES FROM THE PERENNIAL BORDER - EDITH EDDLEMAN (September)

The return of rain and the ensuing cooler days and nights signal the beginning of fall. For many of us the shorter days of autumn indicate the beginning of the end of the gardening year - or ones thoughts may be rushing two seasons ahead as bulbs are planted for spring time bloom. While many of the reliable summer flowering perennials are beginning to fade, the months of September through November offer a flower display that is uniquely their own.

One of the earliest harbingers of the autumn season is *Boltonia asteroides*. Earlier in the season the fresh grey green foliage of this five to six foot tall perennial provided an excellent foil for the smouldering red orange flowers of *Gaillardia X grandiflora*. Since mid-August the stems have been clothed in a myriad of white reay flowers. The white flowers and rounded form of the *Boltonia* contrast beautifully with nearby spikes of pure red cardinal flower, *Lobelia cardinalis*.

Farther down the border vertical accent is provided by two late flowering *Liatris*, *L. aspera* and *L. graminifolia*. *Liatris aspera* bears its flowers in button like heads along four foot tall stems. These "buttons" are made up of bracts which resemble a multi-petaled flower carved from jade and ivory. Prior to the emergence of the thread-like lavender florets these bracts become suffused with a red violet color reminiscent of the blooms of *Penstemon smallii*. *Liatris graminifolia* as its name implies has fine grass like foliage. It is a dainty plant growing slightly over two feet in height and produces lavender flowers in mid to late September.

Nearer to the ground are three charming fall flowering *Alliums*. *Allium senscens* 'glauca' has curly clumps of grey blue foliage topped in September with clusters of soft lavender pink flowers borne 8" above the leaves. Slightly earlier in flower is *Allium tuberosum*, known to many as garlic chives. This beautiful member of the onion family has medium green foliage, which is an excellent addition to salads and stir fry cooking. In September its 18" tall white flower heads attract butterflies and bees. They look wonderful planted with the blue mealy cup sage, *Salvia farinacea*. Midway in height between *Allium senscens* 'glauca' and *A. tuberosum* is *Allium stellata*. Its rounded flowers heads of a gorgeous violet pink rise 12" above narrow grassy green foliage.

Across the path from *Allium stellata* is a beautiful Japanese shrub *Lespedeza thunbergi*. This time of year its softly arching stems are covered by dripping racemes of pea like flowers of the exact same violet pink as the *Allium*. This floral portrait is completed by the soft lavender pink spikes of obedient plant, *Physotegia virginiana*, which are intermingled with the *Lespedeza*.

Aster 'Professor Kippenburg' grows 15" tall and is covered in lavender blue ray flowers. Winding through this aster are the hot pink flowers of *Oxalis boweii*. This South African native has succulent leathery bright green leaves which emerge in early fall and are followed by flowers 1" across. In my Durham garden this oxalis is interplanted with fall blooming *Crocus speciosus*.

A softer autumn pink is provided by *Anemone X hybrida* 'September Charm'. It is indeed charming with silvery purple buds opening into single fleshy blossoms or a satin pink color. This soft pink color will be repeated in October by the single pink daisy chrysanthemums from Elizabeth Lawrence's Charlotte garden and by *Chrysanthemum* 'Venus'. Venus' single pink flowers are white toward the center and gradually fade to white. The flowers are long lasting and fragrant. Another chrysanthemum which flowers in October is *C.* 'Mei Kyo'. Its foliage forms a rounded clump 2' tall which is covered by wine pink tightly petaled "button" flowers. These flowers fade to pink and then white giving a multicolored effect.

Asters offer a lengthy period of bloom beginning with the dwarf Aster 'Professor Kippenburg' and winding up with the tall tiny white flowered frost asters of November. Aster *nova-angaliae*, the New England Aster, grows five feet tall. In late September it is covered by large purple blue ray flowers. Growing along side this aster is *Solidago rugosa*, the rough leaved golden rod. It is to me the most beautiful of our native goldenrods. The tiny yellow flowers are borne in wide arching sprays on 4'tall plants. A *Solidago* new to the border this fall is *S. microcephala*. It is 3' tall and the flower heads are turning a chartreuse green which will turn to yellow later this month. Thanks to Kim and Bruce Hawks of Niche Gardens who donated this plant.

Helianthus maximiliani, a tall prairie native has grey green keel shaped leaves and large ray flowers of a pure yellow. It blooms at the same time as the New England Aster. This plant benefits from being cut back in mid-June. Such treatment encourages bushy growth. Two other *Helianthus* worthy of note are *H. angustifolius* and *H. salicifolius*. *H. salicifolius*, the willow leaved sunflower, has narrow green foliage which curls in an appealing manner. In September the stems are 7' tall and topped by single golden flowers. This plant might well benefit from a June reduction in height. *H. angustifolius* needs no cutting back when grown in full sun exposure. It was recently described by Allen Lacey as ". . .surely the noblest of our native sunflowers." That, I think, says it all. But I'll go on anyway. In mid-October when this magnificent 8-10' sunflower is covered in golden flowers and by orange and black monarch butterflies, it is a fitting finale to the fall season.

This is only a sampling of the fall flowers in the border. Come out and enjoy the asters, chrysanthemums, ornamental grasses, Eupatoriums and *Schizostylis* as well as the long lasting *Coreopsis*, *Gaillardia* and *Verbenas*.

Special thanks go to Dug Ruhren, who has helped maintain the border for over a year, and to Valerie Tyson who in addition to helping maintain the border this summer is helping to catalogue the plants in the border. Do I hear a shout of joy from our Director? (Yes, yes) I had a wonderful visit with Marshall Olbrich of Western Hills Nursery in Occidental, California. Thanks to Marshall and to Dan Rose there will be many new and exciting plants to look forward to next year in the border.

NOTES FROM THE GROUNDCOVERS PLAZA - SUZANNE EDNEY - (September)

Thyme for the annual progress report! Thoughts of *Thymus* sp. are foremost in my thoughts as I hope to install a thyme walk in the ground cover area in the future. The idea is not a new one. My inspiration came from seeing a glorious photograph of the 'Thyme Walk' at Sissinghurst Castle in a beautiful book *Visions of Paradise* by Marina Schinz. The thyme bed will be at the end of the newly paved walk of pressure treated 4" X 4" blocks. I hope that all of you are as pleased as I am to see that walk finally paved and cleaned up. Thanks go to Newell Hancock for many unselfishly devoted hours in the greenhouse 'dungeon', cutting the block. When I envisioned wood pavers there I never realized how labor intensive the project would be. Just cutting them took over 2 days. I then enlisted the help of Tom Bumgarner and Deborah Harvey to lay the things - which took a little over 3 hours. At present you will find various *Sedum* species (*S. stolonifera*, *S.* 'Weiherstephanergo', *S. verajamison*, *S.* 'Red Carpet', *S. ternatum*, *S. ludakense*), and other plants - *Potentilla* 'Double Yellow', *Phlox subulata* 'Blue', and *Santolina chamaecyparissus* in the new bed at the end. Hopefully the thymes will replace these.

Other newly planted areas are the beds on the west side of the ground cover area. Diligent Friends and Volunteers double dug and planted last fall ('85). Some of the areas have filled in nicely despite early morning visits by two huge dogs determined to undermine the compost fence by digging at its base and of course unearthing the plantings there. Plants that have survived and that are doing nicely are: *Abelia* 'Edward Goucher', *Miscanthus sinensis*, *Salvia officinalis*, *Iberis sempervirens*, *Gypsophila repens*, 'rosea', *Saponaria ocymoides*, *Arctostaphylos uva-ursi*, *A.* 'Woods Red', *A.* 'Emerald Carpet' and *Stachys bysantina*.

To compliment Larry Hatch's immensely popular rock garden, a dry garden was designed and installed with the help of our own most gracious gardener Edith Eddleman. We both had the beautiful dry gardens designed by Thomas Church in the back of our minds while planning this. Additions there include: *Sedum*

'Autumn Joy', *Thymus serpyllum*, *Opuntia* sp., *Asclepias tuberosum*, dwarf *Iris* cvs., *Lavandula officinalis*, *Festuca ovina* 'glauca', *Yucca filamentosa*, *Yucca filamentosa* 'variegata', *Phlox subulata* 'Blue', *Dianthus* sp., *Dianthus allwoodii* 'alpinus', and *Dianthus* 'Tiny Rubies'. I give this 10' X 10' dry patch credit for the beginning of loosening up the plantings in the rest of the garden.

Sometimes the interplanting of two ground covers will make a most delightful combination. For instance, one happy 'accident' was placing *Verbena canadensis* with *Liriope muscari* 'Tidwell Big Blue'. And another Eddleman contribution is the gathering of three of our different *Liriope* cultivars on the northeast side of the white pine hedge into a lovely graceful sweep of texture and color.

Mustard seed fungus took its toll on the *Thymus arcticus* subs. *praecox* cv. 'languinosum' (wooly thyme) and the *Coreopsis auriculata*. The fungus seems to thrive on high night temperatures (I have it in my own garden attacking *Ajuga* sp. and *Chrysogonum virginiana* (Green and Gold). Speaking of wooly thyme - the summer technicians who labored in the heat hope that you have noticed the addition of the plant in the pocket pavers at the edge of the Z brick walk.

This year's most prolific ground covers from spring and summer plantings have been: *Potentilla* 'Fire Dance', *Achillea millefolium*, *Hemerocallis* sp., *Symphoricarpos* X 'Chenaultii', *Ceratostigma plumbaginoides*, *Artimesia ludvisciana*, *Portulaca* 'Wildfire', and *Rosa spinosissima* 'Petite Pink Scotch'. Other new additions to the groundcovers area this year include: *Lonicera nitida*, *Anaphalis yedoensis*, *Euphorbia myrsinites*, *Euphorbia robbiae*, *Erigeron* 'Pink Jewel', *Veronica* 'Minuet', *Veronica rupestris* 'Heavenly Blue', *Lysimachia nummularia*, *Sedum telephium* 'Variegatum', *Hypericum calycinum*, *Hypericum aegypticum*, *Ruta graveolens* 'Blue Mound', *Thymus citrodorus*, *Raoulia australis*, *Jasminum nudiflorum*, and *Ajuga reptans* 'atropurpurea'.

Thanks to: Marshall Olbrich of Western Hills Nursery, CA, Kendall Brown, Al Macklin, Tony Avent, Tom Bumgarner, Wayne Brooke, Newell Hancock, John Meyer, John Hoffman, Edith Eddleman, Janice Spence, Deborah Harvey, and many others who have given time and plants to make the ground cover area more complete.

NATIVE EASTERN U.S. WOODY PLANTS GROWN IN ENGLAND

At the Cullowhee Native Plant Conference in Western N. C. this summer I spoke on the use of our native eastern North American plants in the nursery/landscape industries in Europe. A list of the American plants grown in foreign countries as ornamentals could almost constitute a flora of our country. To illustrate the point to the audience I prepared a handout of the following list which was extracted from Hillier's Manual - the most extensive single nursery listing of woody ornamentals in the world. It gives an indication of some of the plants being produced today in a single country by a single nursery. The date following the plant name is the first recorded date of cultivation in Europe. The asterisk following the date indicates the plant is listed in the Manual of the Vascular Flora of the Carolinas by Radford, Ahles, and Bell. Of course, many other woody plants and herbaceous perennials of our area are also used as ornamentals in Europe but are not listed in Hilliers - a few of these have been added to the list in parentheses as examples.

In working up this presentation I became newly aware of two things that I had never really focused on before - one was the amazing sheer numbers of species of our truly superb native plants which are grown in Europe commercially that one cannot find produced anywhere in the commercial landscape nursery trade in the U.S. I remember several years ago hearing of a public garden in the northeast who had to order out native N. C. crossvine, *Anisostichus capreolata*, from England (at great expense) because they could not find a commercial source anywhere here in the southeast where it grows commonly. Growers located where such species are common in the countryside around them usually cannot imagine anyone buying something they see on the roads every day - yet most of our population lives in highly developed (read - stripped bare of any significant plants) urban areas and can neither see nor enjoy such plants unless they are purchased.

And I suppose the exotic and rare always has an appeal over the familiar. My often-repeated story of the sweetgum tree is the ultimate example - world-wide it is considered among the most magnificent of trees and grown commercially in dozens of countries on 3 continents, yet scorned here in spite of its fine qualities. So much so that even when a form appears which avoids the common objection of gum balls - the "new" (discovered in 1930 in N. C.) fruitless sweetgum - producers here will not even consider its use. Little known "new" species from abroad also have appeal because we are not yet aware of their flaws, which always exist with every species - and which emerge when mass quantities are in plantings under close public scrutiny. (Perhaps something like that wonderful perfect individual one marries and discovers - to great astonishment - that they also crack their knuckles, love to watch wrestling on TV, and tear ads out of magazines that have the end of the story you are reading on them.) This summer I was shown the largest *Davidia* tree in Vancouver, BC in a private home garden. It was in full bloom and magnificent of course, but the thing I most noted about this tree that all horticulturists seem to swoon over (rightfully so) - was how incredibly trashy it was in reality with big white bracts scattered all over the yard, piled on the sidewalk, tangled in the bedding plants, etc. If dove trees were as common as sweet gums we would probably complain just as much about them.

The other impressive concept is just how long most of our U. S. plants have been grown commercially in other countries - most plants on this list were introduced to Europe in the period 200-300 years ago. Keen nurserymen observers there have had a long time to observe their populations and select for improved types - something we have done little of in the U.S. to date with "our" plants. We have 400 cultivars (it seems) of *Acer palmatum* from Japan with every conceivable characteristic for use - but where are the American cultivars of *Acer leucoderme* which has enormous variation in the wild, and superb characteristics for an urban tree? Although it was indeed important and useful, years ago I was amused by the initial "original" research here and great excitement that "showed" we could actually commercially produce our native *Rhododendron* species in N. C. from seed - something handled commonly by the English nurserymen for over a hundred years and routinely described in their nursery books. A fitting quotation of American horticulture from the English, one of my very favorites from Hillier's Manual, is about the beautiful and spectacular *Magnolia ashei* from Florida: "It is strange that a plant of this quality growing in a country enjoying western civilization was not recorded in cultivation until 1933."

The current push for native plants is long overdue and an area we can make huge strides in for better plants for the American (and) European markets.

Abies fraseri 1811 "

Acer leucoderme c. 1900 "

Acer negundo c. 1688 "

Acer nigrum 1812 "

Acer pensylvanicum 1755 "

Acer rubrum c. 1656 "

Acer saccharinum 1725 "

Acer saccharum 1735 "

Acer spicatum 1750 "

Aesculus flava 1764

Aesculus glabra 1809

Aesculus glaucescens ?

Aesculus neglecta 1826 "

Aesculus parviflora 1785

Aesculus pavia 1711 "

Alnus serrulata 1769 "

Amelanchier canadensis ? "

Amelanchier hurilis 1904

Amelanchier laevis 1870 "

Amelanchier stolonifera 1883 "

Amorpha canescens 1812

Amorpha fruticosa 1724 "

Androneda polifolia 1768

Aralia soinoso 1688 "

Arctostaphylos uva-ursi ?

Aristolochia macrophylla 1783"

Aristolochia tomentosa 1799 "

Aronia arbutifolia c. 1700 "

Aronia melanocarpa c. 1700 "

Aronia prunifolia 1800 "

Asinina triloba 1736 "

Baccharis halimifolia 1683 "

Betula lenta 1759 "

Betula lutea 1767 "

Betula nigra 1736 "

Betula papyrifera 1750

Betula populifolia 1750 "

Betula pumila 1762

Bignonia capreolata 1653 "

Callicarpa americana ? "

Calycanthus fertilis 1806 "

Calycanthus floriosus 1726 "

Campsis radicans 1640 "

Carpinus caroliniana 1812 "

Carya cordiformis 1766 "

Carya glabra 1799 "

Carya illinoensis 1760 "

Carya laciniosa 1804 "

Carya ovata 1629 "

Carya tomentosa 1766 "

Castanea dentata 1800 "

Castanea pumila 1699 "

Catalpa bignonioides 1726 "

Ceanothus americanus 1713 "

Celastrus scandens 1736 "

Celtis laevigata 1811 "

Celtis occidentalis 1656 "

Celtis pumila 1876 *Cephalanthus occidentalis* 1735

Cercis canadensis 1730 "

Chamaecyparis henryae ?

Chamaecyparis thyoides 1736 "

Chamaedaphne calyculata 1748

Chionanthus virginicus 1736 "

Cladrastis lutea 1812 "

Clethra acuminata 1806 "

Clethra alnifolia 1731 "

Clethra tomentosa 1731 "

Comptonia peregrina 1714 "

Cornus alternifolia 1760 "

Cornus amomum 1783 "

Cornus baileyi 1892

Cornus canadensis 1774

Cornus drummondii 1836

Cornus florida 1730 "

Cornus racemosa 1758 "
Cornus rugosa
Cornus stolonifera 1656
Corylus americana "
Corylus corniua 1745 "
Cortinus obovatus 1882
Crataegus coccinoides 1883
Crataegus collina 1889
Crataegus crus-galli 1691
Crataegus flava ? "
Crataegus intricata 1730 "
Crataegus missouriensis 1905
Crataegus nitida 1883
Crataegus phaenopyium 1738 "
Crataegus punctata 1746 "
Crataegus uniflora 1704 "
Cyrilla racemiflora 1765 "
Decumaria barbara 1785 "
Diervilla lonicera 1720 "
Diervilla rivularis 1896 "
Dierville sessilifolia 1844 "
Diospyros virginiana 1629 "
Dirca palustris 1750 "
Elliottia racenosa 1813
Epigaea repens 1736 "
Euonymus americanus 1683 "
Euonmyus obvatus 1820 "
Fagus grandifolia 1766 "
Foresteria acuminata 1812 "
Fothergilla gardenii 1765 "
Fothergilla major 1780 "
Fothergilla nonticola 1899
Franklinia alatanaha 1765
Fraxinus americana 1724 "
Fraxinus nigra 1800
Fraxinus pennsylvanica 1783 "
Fraxinum quadrangulata 1823
Fraxinus tomentosa 1912

Gultheria procumbens 1762 "
Gaylussacia baccata 1772 "
Gaylussacia brachycera 1796 "
Gelsemium sempervirens ? "
Gleditsia aquatica 1723 "
Gleditsia triacanthos 1700 "
Gordonia lasianthus 1768 "
Gymnocladus dioicus 1746 "
Halesia carolina 1756 "
Halesia diptera 1758 "
Halesia monticola 1897
Hamamelis virginiana 1736 "
Helianthemum canadense 1825 Hydrangea arborescens 1736 "
Hydrangea cinerea 1908 "
Hydrangea quercifolia 1803
Hydrangea radiata 1786 "
Hypericum densiflorum 1889 "
Hypericum frondosum ?
Hypericum prolificum 1750 "
Ilex cassine 1726 "
Ilex decidua 1760 "
Ilex glabra 1759 "
Ilex myrtifolia ? "
Ilex opaca 1744 "
Ilex verticillata 1736 "
Illicium floridanum 1771
Itea virginica 1774 "
Juglans cinerea 1633 "
Juglans nigra 1656 "
Juniperus communis 1890 "
Juniperus horizontalis 1830
Juniperus monosperma 1900
Juniperus virginiana 1664 "
Kalmia angustifolia 1736 "
Kalmia carolina 1906 "
Kalmia latifolia 1734 "
Kalmia polifolia 1767
Larix laricina 1760

Leiophyllum buxifolium 1736 "
Leitneria floridana 1894
Leucothoe fontanesiana 1793
Leucothoe populifolia 1765 "
Lindera benzoin 1683 "
Liquidambar styraciflua 17th C
Liriodendron tulipifera 1688 "
Lonicera glaucescens 1890 "
Lonicera sempervirens 1656 "
Lyonia ligustrina 1746 "
Lyonia lucida 1765 "
Lyonia mariana 1736 "
Maclure pomifera 1818 "
Magnolia acuminata 1736 "
Magnolia ashei 1933
Magnolia cordata 1801
Magnolia fraseri 1786 "
Magnolia grandiflora 1734 "
Magnolia macrophylla 1800 "
Magnolia pyramidata 1825 "
Magnolia tripetala 1752 "
Magnolia virginiana 17th C
Malus angustifolia 1750 "
Malus coronaria 1724 "
Menispermum canadense 1646
Menziesia pilosa 1806 "
Mitchella repens 1761 "
Merus rubra 1629 "
Myrica cerifera 1669 "
Myrica pensylvanica 1727 "
Meviusia alabamensis 1860
Myssa aquatica 1735 "
Myssa sylvatica 1750 "
Osmanthus americanus 1758 "
Ostrya virginiana 1692 "
Oxydendron arboreum 1752 "
Pachistima canbyi 1800
Pachysandra procumbens 1800

Parthenocissus quinquefolia 1629 "

Persea borbonia 1729 "

Philadelphus intectus 1800

Philadelphus verrucosus ?

Physocarpus opulifolius 1687 "

Picea glauca 1700

picea rubens 1755 "

Pieris floribunda 1800 "

Pinus echinata 1739 "

Pinus palustris 1730 "

Pinus resinosa 1736

Pinus strobus Mid 16th C

Pinus taeda 1741 "

Pinus virginiana 1739 "

Planera aquatica 1816 "

Platanus occidentalis 1636 "

Populus deltoides ? "

Populus grandidentata 1772

Potentilla tridentata 1789 "

Prunus americana 1768 "

(Prunus caroliniana)"

Prunus maritima 1818

Prunus munsoniana 1911

Prunus nigra 1773

Prunus pensylvanica 1773 "

Prunus serotina 1629 "

Prunus virginiana 1724 "

Ptelea trifoliata 1724 "

Quercus alba 1724 "

Quercus bicolor 1800 "

Quercus coccinea 1691 "

Quercus ilicifolia 1800 "

Quercus imbricaria 1786 "

Quercus laurifolia 1786 "

Quercus macrocarpa 1811 "

Quercus marilandica 1739 "

Quercus michauxii 1737 "

Quercus myhlenbergii 1822 "

Quercus nigra 1723 "

Quercus palustris 1800 "

Quercus phellos 1723 "

Quercus prinus 1688 "

Quercus rubra 1724 "

Quercus schumardii 1897 "

Quercus velutina 1800 "

(*Rhododendron alabamense*) "

Rhododendron arborescens 1816 "

Rhododendron atlanticum 1916 "

Rhododendron calendulaceum 1806 "

Rhododendron canascans 1810

Rhododendron carolinianum 1815 "

(*Rhododendron catawbiense*) "

Rhododendron chapmanii 1936

Rhododendron maximum 1736 (*Rhododendron minus*) "

(*Rhododendron nudiflorum*) "

Rhododendron oblongifolium 1917

Rhododendron prunifolium 1918

Rhododendron roseum 1812 "

(*Rhododendron serrulatum*) "

Rhododendron vaseyi 1880 "

Rhododendron viscosua 1734 "

Rhus aromatica 1759 "

Rhus copallina 1688 "

Rhus glabra 1620 "

Thus typhina 1629 "

Ribes americanum 1729

Robinia boyntonii 1914 "

Robinia elliottii 1901 "

Robinia fertilis 1900 "

Robinia hartwigii 1904 "

Robinia hispida 1743 "

Robinia kelseyi 1901 "

Robinia luxurians 1887

Robinia pseudoacacia 1601 "

Robinia viscosa 1791 "

Rosa blanda 1793

Rosa carolina 1826 "

Rosa foliclosa 1886

Rosa nitida 1807

Rosa setigera 1810

Rosa virginiana 1807

Rubus odoratus 1770

Salix discolor 1811

Salix eriocephala 1896

Salix humilis 1876 "

Sambucus callicarpa 1900

Sambucus canadensis 1761 "

Sapindus drummondii 1900

Sassafras albidum 1633 "

Shepherdia canadensis 1759

Sorbus americana 1782 "

Spirea tomentosa 1736 "

Stewartia nalacodendron 1742 "

Stewartia oyata 1800 "

Styrax americana 1765 "

Symphoricarpos albus 1879 "

Symphoricarpos orbiculatus 1730 "

Taxodium ascendens 1789 "

Taxodium distichum 1640 "

Taxus canadensis 1800

Taxus floridana ?

Thuja occidentalis 1534 "

Tilia americana 1752 "

Tilia floridana 1915 "

Tilia heterophylla 1755 "

Tilia nonticola 1886 "

Tilia neglecta 1830 "

Torreya taxifolia 1840

Tsuga canadensis Before 1730

Tsuga caroliniana 1881 "

Ulmus alata 1820 "

Ulmus americana 1752 "

Ulmus crassifolia 1876

Ulmus serotina 1903

Ulmus thomasi 1875

Vaccinium arboreum 1765 "

Vaccinium atrococcum 1896 "

Vaccinium corymbosum 1765 "

Vaccinium crassifolium 1767 "

Vaccinium hirsutum 1887 "

Vaccinium membranaceum 1828

Vaccinium myrsinites 1813 "

Vaccinium virgatum 1770

Viburnum acerifolium 1736 "

Viburnum alnifolium 1820 "

Viburnum bracteatum 1904

Viburnum cassinoides 1761 "

Viburnum dentatum 1736 "

Viburnum lentago 1761 "

Viburnum nudum 1752 "

Viburnum prunifolium 1731

Viburnum pubescens 1731

Viburnum scabrellum 1830

Viburnum trilobum 1812

Vitis labrusca 1656 "

Vitis riparia 1656 "

Wisteria frutescens 1724 "

Xanthorrhiza simplicissima 1776 "

Yucca filamentosa 1675 "

Yuca flaccida 1816 "

Yucca glauca 1811

Yucca gloriosa 1550 "

Yucca recurvifolia 1794

Zanthoxylum americanum 1740 Zenobia pulverulenta 1801 "

1986 NCSU Arboretum (now the JC Raulston Arboretum) PLANT DISPLAY

NCAN Short Course and Trade Fair - Asheville, NC - August 10-12

(Most members who comprise the Friends of the NCSU Arboretum (now the JC Raulston Arboretum) are not in the professional nursery/landscape trade, but are serious gardeners or people who want to support the continuation of the arboretum as a state resource. Beyond the arboretum use as a university teaching resource and display garden for the public, there is also the very important outreach to the commercial industry. Each year plants are taken to the North Carolina Association of Nurserymen's meeting for display, and thousands of plants are also propagated for free distribution to the nurserymen as an incentive to try to encourage them to grow some new crops. To allow our "Friends" to have a feel for this outreach, I am including here the information distributed at the 1986 meeting on plants on display and plants distributed. Note - the supply of plants distributed at the meeting has been exhausted and those plants are no longer available.)

In the year since the last Asheville NCAN Short Course, about 750 different new plants have been added to the collections of the NCSU Arboretum (now the JC Raulston Arboretum). The collection currently holds about 4,500 different ornamental plants. The plants on display represent some of the diversity of plants acquired in the past year.

Bauhinia lunarioides. The Bauhinias are tropical trees and shrubs, often with showy flowers and are known as orchid trees. None has been considered hardy enough for consideration outside Zone 9-10. I found this rare native Texas species on a visit to Texas this spring, and when it gets more size will try it in Raleigh and Wilmington to see potential for N.C. use. It has white flowers. An interesting story is involved with the genus name - all members of this genera have leaves divided into two identical halves - named after John and Casper Bauhin - twin German botanists of the 16th century who worked in such close companionship that the twin leaflets were thought to symbolize their labors. (Late note - now planted in the White Garden near the magnolias.)

Chamaecyparis nootkatensis 'Pendula Variegata'. The weeping Nootka cypress is one of the most beautiful of all conifers and well adapted for use in most of N.C. - becoming less successful the further east and south one goes. Definitely needs much more use in the mountains. This rare white variegated form was found at the University of British Columbia Botanical Garden last summer and propagated from a cutting. (Late note - now planted with the larger weeping Nootka cypress by the pampas grass collection at the east end of the perennial border.)

Chamaecyparis obtusa '. The last two years we have received a large number of trial plants from the superb Duncan & Davies Nursery in New Zealand. This is a new golden foliaged cultivar of the dwarf Hinoki cypress which originated there. The New Zealand nursery industry is similar to the Dutch industry in actively developing new improved cultivars to help their marketing programs. (Later note - now planted between the farm office and Beryl Road near the Unit #4 Research Farm sign.)

Cladrastis platycarpa. This is one of the Asian equivalents of the N.C. yellowwood tree. The Japanese yellowwood is a smaller tree with white showy flowers. It is very rare in cultivation in the U.S. and we grew a number of plants from seed obtained from the Arnold Arboretum. (Later note - about 25 trees have been distributed to various gardens across N.C. and the U.S.)

Colletia cruciata. This formidable looking thorny bush is a shrub from Uruguay and is the hardiest of a dozen species in this rare genus - likely hardy at the coast (Krussman says zone 8) and possibly in Raleigh - I know of no trials in this country for performance data. It is a popular oddity in England where it grows very well. This is the ultimate anti-penetration hedging plant! Propagated by cuttings which have rooted very slowly for me.

'Coopertone' - This plant is one of the "hottest" new plants in the Texas/California marketplace now with enormous demand. Patented and introduced by Hines Nursery and claimed to be a bigeneric hybrid between Photinia and Loquat (originally named the "Phoquat") - but most people I have talked to believe it to be a vigorous *Raphiolepis* seedling. It has been very difficult to propagate unlike most of the Indian hawthorns - resulting in market scarcity and high prices. It grows rapidly, has red foliage on new growth like the red-tip photinia (though not as dark colored), and the pink flowers of Indian hawthorn. It should be an excellent plant in the east half of N.C., and when market supplies increase it will be increasingly shipped in. (Later note - now planted in the Bigeneric Hybrids collection in the west arboretum area - near the swing.)

Cupressus glabra 'Blue Ice'. Another of the New Zealand plants received last year. This and 'Blue Smoke' have excellent color and good market name appeal (important in sales image and often overlooked by U.S. originators - e.g. note the blue juniper below by contrast). It has grown rapidly and should be hardy throughout N.C. (Later note - now planted south of the row of dwarf loblolly pines in the magnolias area. 'Blue Smoke' and *Juniperus deppeana* 'McFeters' also there.)

Diospyros texana 'Pecos Dwarf'. Another plant obtained during my recent visit to Texas. The Texas persimmon is a beautiful and tough plant which grows around the San Antonio/Austin area. Ancient plants with beautiful gnarled trunks are dug from the wilds and used in commercial landscaping. A population of genetic dwarf plants was recently discovered and are being evaluated for their commercial potential. We'll likely have root rot problems with them in our area - but must try to know for certain. Our success with the rare *Quercus hinckleyi* from that same area surprised me years ago.

Euscaphis japonica (NA 55127). A 20-30' deciduous shade tree from Korea and Japan with great potential as a new ornamental plant. It grows rapidly and begins flowering and fruiting when young. The flowers are yellowish-green and appear in mid-summer. The fruit are the most showy part of the plant and turn bright pink to red as they mature in the fall. The fruit split open revealing glossy black seeds against the red pulp which remain on the tree for some time. This attractive fruit display may last 3-4 months. The foliage is dark green and quite handsome - later turning a rich dark red in fall color. Grown from seed or from softwood cuttings under mist in summer. Most previous sources have been from Japanese stock which is less hardy. Several of the Korean collections are extremely ornamental and should be hardy throughout N.C. We are probably 2-3 years from having stock of this outstanding plant to release to the industry. (Later note - now planted in the northeast section of the Hamamelis collection.)

Genista pilosa 'Vancouver Gold'. This evergreen groundcover was introduced to the trade by the UBC Plant Introduction Program, and has subsequently become a major new plant in the Pacific NW landscape market sold by the tens of thousands. It will reach 1' in height with age and spread 3-4'. In spring it is solidly covered with bright golden flowers. We had hoped to distribute it this year, but only got to about 100 containers and decided to wait until next year when we will have large quantities of cuttings available. Though not patented,

rights are paid to propagate the plant - the money goes back to UBC to support the new nursery crops program - something which is badly needed here to keep the NCSU program alive. (Later note - several months after the trade show, the nurserymen voted to approve a program similar to that of UBC here at NCSU!)

Heptacodium jasminoides. A plant new to cultivation in the last 5 years from the efforts of the Sino-American Botanical Expedition of 1980. An extremely rare plant even in its native China but on the verge now of becoming a major nursery crop in the U.S. during the next decade. It becomes a small deciduous tree to 15-20' with beautiful peeling flaking bark, handsome curled dark green leaves, and white fragrant flowers in large panicles in September followed by reddish-purple bracts which remain colorful until frost. It propagates very easily, grows rapidly, and will thrive anywhere in N.C. By 1987 we will have good quantities for distribution. (Our largest plant located by the blue spruce and barberries collections.)

Ilex crenata 'Midas Touch'. A new Japanese holly cultivar originated at Rutgers University. Generally I have found little interest in golden or variegated plants in N.C. - but last fall when I displayed this plant at the IPPS meeting here in Asheville - it garnered the most attention, questions and request for propagation wood of all the plants we had on display. We should have it in the 1987 plant distributions. (Later note - now planted in the bed south of the Hamamelis collection with the collection of variegated hollies.)

Ilex dimorphophylla x *cornuta*. A new holly hybrid obtained from Dr. Ted Dudley of the U.S. National Arboretum. *I. dimorphophylla* has a beautiful, very delicate spined leaf but is not very hardy. When crossed with the Chinese holly it picked up the hardiness of the latter species and retained much of the delicate foliage of the former. A very recent hybrid and this is the first plant released from the program. We will build stock and distribute it around the state to determine just how hardy it will actually be.

Juniperus deppeana 'McFeters'. This bright blue seedling variant of the alligator juniper was found in the mountains of Arizona, named for its discoverer (now just how marketable is a "McFeters juniper"??), and brought to the east coast by Tom Dilatush who then shared it with us. I suspected it would be susceptible to summer root rots considering its origin, and that it would likely be hard to propagate from cuttings - but have been wrong on both points. It has the best blue color of any conifer in our collection - far outshining any of the *J. scopulorum* or *C. glabra* cultivars - and is quite stunning in the winter when at its best. Our plant has grown about 1.5' per year and is now 6' in height. It has been easy to root and we are building up stock for a future distribution - likely in 1966. A plant with extremely promising commercial potential. It should grow well anywhere in N.C. (Located east of the pampas grass collection.)

Juniperus horizontalis 'Mother Lode'. The first gold variegated *J. horizontalis* cultivar which was found on a plant at the Iseli Nursery in Oregon about 3 years ago (see photo of the original branch mutation). Though very rare and potentially valuable to his nursery, the late Jean Iseli characteristically gave us one of this few plants for Larry Hatch's graduate research on this group of plants without any questions. Unlikely to be popular in N.C. because of its color - it will likely be a sensation in England, Europe and the Pacific N.W. Mr. Hatch recently discovered a lime green mutation on another *J. horizontalis* plant here in N.C. which appears to be stable, much more beautiful, and potentially more commercially useful. It has a potential name of 'Lime Glow'. We'll have it on display next year to get comments.

Juniperus rigida 'Akebono'. For several years we have actively promoted the use of this species as a new nursery crop and last year distributed it at the short course. This white-tipped cultivar from Japan was recently received from Brookside Gardens. It will reach 15-10' in height and as a mature specimen should be quite showy with the many sparkling white tips on the plant. We will begin to propagate it next year but will be 2-3 years before we have enough for a major distribution. (Later note - we had many favorable comments about this plant at the trade show - now planted in the Hamamelis collection.)

Koelreuteria bipinnata. This is one of the plants I recommended at the IPPS meeting last fall. Similar in appearance to the commonly grown golden rain tree - but much more ornamental in the landscape. It blooms a bit later with golden flowers, but in fall the papery seed pods turn a bright pinkish-purple color and remain attractive all fall. It is sometimes reputed to not be hardy, but such reports come from a common problem of mislabeled seed in commercial trade with growers obtaining *K. elegans* instead. The true *K. bipinnata* is hardy throughout N.C. Propagated only by seed.

Kesoedeza thunbergii 'Albiflora'. A beautiful white flowered form of this Japanese plant recently brought back to the U.S. by the U.S. National Arboretum. It makes an oval herbaceous shrub to 4' in height which is covered by white flowers in September-October. It is very easily propagated by softwood cuttings and can be built in numbers quickly. We now have over 100 plants and it will definitely be in the 1987 distribution. (Later note - planted between the visitor center and the specimen cut-leaf Japanese maple.)

Liquidambar styraciflua 'Rotundifolia'. The sweet gum tree is universally disliked in N.C. because of the gum balls produced by the tree - outweighing its many virtues of handsome foliage, fast growth, tough constitution, excellent fall color, etc. This cultivar does not produce fruit and should be produced in the industry for use. We had hoped to distribute grafted plants this summer but spring came earlier than we expected and we only had 100 plants grafted before dormancy was broken. We will have it available next year. However, large plants exist on the UNC and NCSU campuses which could provide budwood to bud thousands of plants for anyone interested in producing it. It is easily T-budded on seedling understock in summer, or cleft grafted in winter. After trying to get someone in N.C. to propagate and grow it for the last 10 years (and 56 years after it was discovered and named near Southern Pines) - we have finally sent budwood to western corporate nurseries where it will be grown and eventually sent back to N.C. (as was *Magnolia grandiflora* 'Little Gem' - discovered in N.C., ignored, and finally produced by Monrovia as an enormously popular plant for shipment back here). Won't somebody do some local production of this N.C. plant??? (Later note - planted with the sweet gum collection north of the Hamamelis collection.)

Ligustrum japonicum 'Korea Dwarf' (NA 56593). This small leaved variant of the common evergreen ligustrum was found last fall in our Korean expedition on Taehuksan Island in a population of normal-sized plants. Though some could say one ligustrum is more than enough - it is unquestionably an extremely important plant in the nursery trade and this smaller form would be very useful for residential properties where the normal species must constantly be pruned to keep it in bounds. We are building stock and should have it available next year. It came from a far southern area in Korea near the sea and may have limited hardiness which will need to be tested before widespread commercial production. But it looks very promising. (Later note - now planted along the chain link fence in the west part of the Southall Garden.)

Mahonia gracilis. An extremely rare species from the mountains of Mexico being evaluated by Lone Star Nurseries in Texas - likely the first time it has ever been grown in cultivation. In their beds it was quite handsome, but I've had some difficulty in growing it (note the necrotic leaves) - likely due to minor element deficiencies in the pH 3.5 media it ended up in here! Southwest desert materials often grow in pH 8.0 and above soils - so I need to do some adjustment to make it feel at home. Mahonias are a passion with me and the arboretum is developing quite a collection of types from around the world - several have great potential for commercial use.

Podocarpus macrophyllus var. *maki* 'White Shoots'. Another Japanese cultivar from Brookside Gardens with potential for use in the Wilmington area where this species is dependably hardy, and possibly in Raleigh where it is normally suitable (forget the winter of 1984 which never happened). The species is often also used as a tropical foliage plant and this cultivar should be introduced into the greenhouse foliage industry. (Later note - now planted in the White Garden between the specimen cut-leaf maple and the "Nellie Stevens' holly hedge.)

Quercus cerris 'Variegata'. Oaks are generally very stable with few color variants being found; and even when they occur they are difficult to propagate even by grafting. Several variegated forms of various species exist in the European speciality plant nursery industry but are very rarely seen in the U.S. We have 5 grafted forms of English oak now - which do very well in N.C.; as well as this turkey oak and several other species. This spring in Texas I discovered a nurseryman who had found a variegated live oak in his seedbed - which I now lust after and someday must have a graft from. Variegated oaks will never be commercially useful because of the great difficulty in propagation - but are interesting to have around just for their novel beauty. (Later note - our import quarantine period will end on this plant in summer 1987 and we will then add it to the White Garden.)

Ophiopogon jaburan 'Variegated' (NA 56458). This beautiful plant was our very first plant collection of the 1985 Korean expedition on our first day in the country while looking through the Namdaemun nursery district in Seoul. This is probably an old Japanese selection now rare in Japan which has persisted in Korea since the Japanese occupation. We will be dividing and building up stock for trial around the state to determine how hardy the plant will be. It produces white flowers and has great ornamental potential. In Korea it is used as an indoor foliage plant in pot production. (Later note - this plant was probably the one most admired and commented on during the trade show - if it is hardy it will obviously be a major winner for commercial production.)

Philadelphus coronarius 'Variegatus'. This extremely showy white-variegated cultivar of mockorange was first discovered in 1770, and though popular in England in the last century, is now rare in the nursery trade today. It makes a 6-8' deciduous shrub with fragrant white flowers in early summer. It would seem likely that the plant would badly sunscorch in our hot sun - but the plant on display has spent the summer in full sun in our container nursery through the hottest July in history. Easy to propagate and rapid growing. We hope to have this plant for distribution in 1987.

Pinus quadrifolia. We are continually evaluating pine species for use in the Raleigh area under the pressure of the pine shoot-tip moth which wipes out the vast majority quickly after their planting in the arboretum. This rare species from California is just another of dozens in this long series. Most of the U.S. west coast species also have problems with root rots in summer with rain and high temperatures in poorly drained soils, or eventual nutritional problems in our very acid soil. Our most successful exotic species has been quite a surprise - *Pinus pinea*, the Italian Stone Pine. I would have expected it to not be hardy, to die in the summer, and to get tip moths - but none have occurred and our 9 year old plant is making a beautiful specimen.

Pinus taeda 'Nana'. I bring back a plant of our dwarf loblolly pine each year to once again try to encourage someone to get this fine ornamental in production. We contracted with a professional contract grafter in Pennsylvania several years ago to graft a block of these for us. The grafts are now 3 years old and make very saleable plants at this age.

Platanus X 'Liberty' (NA 36537). One of the new hybrid sycamores recently released by the U.S. National Arboretum for its improved disease resistance. I was surprised to just discover it is already being sold commercially in the Oregon nursery trade in spite of the short period since its introduction.

Potentilla fruticosa 'Abbottswold Silver'. A new variegated cultivar of potentilla from Europe being offered for sale for the first time this year by Wayside Gardens. Specialty nurseries are finding an incredibly strong market for unusual rare materials and are searching the world to bring in the very latest cultivars from England, Holland, New Zealand, Japan, etc. where development of such new plants is considered essential to their marketing success. Potentilla is best in N.C. for use in the mountains, with decreasing value as one goes east to hotter and hotter areas. They are marginal in Raleigh - surviving with sporadic bloom, but never as showy as one would see them in the north or in Europe. (Later note - true to the above comment we lost this plant a week later when we had a solid day of heavy rain with temperatures in the 90's and it collapsed from disease. The variegated and so-called "red" cultivars of Potentilla are much weaker than "standard" cultivars for these marginal areas.)

Sequoia sempervirens 'Pendula Nana'. This dwarf creeping form of the world's tallest tree was found as a branch sport on a tree at the Cambridge Botanic Garden in England in 1951. Though a marginal species in N.C., we have had good luck with the 'Albospica' cultivar in our lathhouse planting and will be planting this one there also. It is propagated by cuttings.

Sinocalycanthus sinensis. An extremely rare Chinese plant first cultivated in North America at the University of British Columbia Botanical Garden from which this plant (the first one in the U.S.) originated. It is the Asian counterpart to our southeastern sweetshrub (*Calycanthus*) though the flowers look nothing alike. We were likely the first to ever propagate this plant vegetatively and will have plants to try around the state in 2-3 years. It should be hardy at least in the east half of the state. (Later note - this fall after showing slides of it in flower at a meeting in N.Y. I received a letter from The Brooklyn Botanic Garden and learned they also have it as a recent addition to their collection grown by them from Chinese supplied seed. Our plant is now planted outside the northwest corner wall of the Japanese garden.)

Thuja koraiensis. Perhaps the most beautiful species of arborvitae, and one of the least common. Unlike most conifers it is an excellent plant for light shade. As the plant gets larger, one of its special beauties to enjoy is to look up into the attractive silvery underside of the branchlets. The parent stock of this plant was brought back from Korea by Dr. Richard Lighty, and our plant was given to us by Tom Dilatush in New Jersey.

Viburnum awabuki (NA 56506). This beautiful species of evergreen viburnum is presently in cultivation in the U.S. and is commonly produced along the Gulf Coast and in California. It is deserving of greater use in the eastern half of N.C. This particular clone was discovered on the 1985 Korean expedition in a schoolyard on Chindo Island. Among numerous seedling plants in the schoolyard which had been dug from the wild and transplanted there, this one was notable for the spectacular large pendulous masses (6-10' in diameter) of bright red fruit hanging in the 15' tall plant - like ornaments on a Christmas tree. It propagates very easily from single node cuttings and by 1987 we will have large quantities to distribute for testing around the state to see just how hardy it will actually be. But it will certainly be useful at least in the coastal areas. Several west coast corporate nurseries are very anxious to get this plant from UBC to get it in commercial production. (Later note - now planted behind the liriop collection.)

Viburnum plicatum var. *tomentosum* 'Summer Stars' or 'Funisanensis'. This old Japanese cultivar has recently become a major "hot" crop in the Pacific NW due to its more compact growth and summer-long flowering characteristic, staying in bloom for 2-4 months. In the northeast it also produces spectacular red fruit in fall but it is doubtful if that will occur in our area with high night temperatures (more likely in the mountains). The plant roots easily from softwood cuttings all summer. Liners are for sale from many Oregon propagators and nurserymen should be adding it to their inventory as it will become a very popular plant here. (Late note - now planted in the White Garden - near the magnolias beside the variegated aralia planter.)

Vitex trifoliata 'Variegata'. I found this plant in Texas this spring and had never before encountered either this species, or a variegated form of *Vitex*. In our air conditioned greenhouse it is less variegated than it is in full sun and good heat, but still shows the attractive mottling. It has been in bloom continuously for the last 4 months. I have no idea of hardiness but it propagates very easily by cuttings and we will try the parent plant outside this winter and save young plants for the coast and other trials. (Later note - now planted at the east section of the *Vitex* collection.)

1986 NCSU Arboretum (now the JC Raulston Arboretum) PLANT DISTRIBUTION

NCAN Short Course and Trade Fair - Asheville, NC - August 10-12

Each year a selection of plants from the NCSU Arboretum (now the JC Raulston Arboretum) is made for propagation and distribution to N.C. nurserymen at the summer short course as a means of spreading new or uncommon plants through the state for further observation and perhaps potential commercial production. Selection of plants is based on plant ability to be propagated in midsummer when the Department of Horticulture propagation benches are empty, size of plants adequate to allow taking of 200-300 cuttings, and absence in the existing commercial industry. Plants will vary in commercial potential with some having great potential - others merely curiosities or hobbyist collector-type items. The 1986 distribution contains a number of plants resulting from the 1985 Korean collecting expedition sponsored in part by the NCAN.

These 6,000 young plants being provided for growers represent just a small sample from the 4,500 species and cultivars presently growing in the NCSU Arboretum (now the JC Raulston Arboretum). Commercial growers are most welcome at any time to come to the arboretum to collect propagation material to provide stock plants for their operations. We do request that an appointment be made to coordinate which materials will be collected. Dozens of growers now receive many thousands of cuttings annually from this source. Each plant in the bag being distributed is tagged with a number corresponding to the numbers in the following listing. Some bags may unfortunately not contain all plants listed due to lack of adequate cutting stock or poor rooting response of some.

NOTE - MOST OF THESE PLANTS ARE TOO SMALL TO BE PLANTED DIRECTLY INTO THE FIELD AT THIS STAGE, AND ARE TOO YOUNG TO OVERWINTER SUCCESSFULLY UNLESS SHIFTED INTO LARGER POTS, WINTER-PROTECTED, AND GROWN ANOTHER YEAR BEFORE PLANTING OUT.

1. *Aphananthe aspera* Planch. (NA 56718) (Ulmaceae). One of the plants from our 1985 Korean collecting expedition. A rare genus related to the hackberries (*Celtis*) and confined to eastern Asia. It is extremely rare in cultivation and has likely never been tested in the southeastern U.S. where it has the greatest potential for use as a shade tree in Zones 6-8. The leaves and growth form have similarities to Zelkova and some Elms. The tree is rapid growing and can reach a height of 60'. The flowers are insignificant and small purple-black seeds are produced in autumn. It will likely not propagate well by cuttings and future crops will be dependent upon establishing trees for later seed collection. We are very much interested in ultimately determining the hardiness of this collection population. We hope the plants will be planted out after a year of container growth to a place where they can grow undisturbed to determine growth rate and hardiness. It should be an excellent new shade tree for the south. We have quantities of seedlings if anyone is interested in growing a block of plants.

2. *Callicarpa dichotoma* var. *albifructa* K. Koch (Verbenaceae). This is a rare white-berried form of the Korean beautyberry which normally has purple-colored fruits. It forms a deciduous shrub reaching 4-5' in height with heavy masses of fruit on the branches in fall and winter even when young. One of the easiest plants to propagate from softwood cuttings all summer - one nurseryman who gathered cuttings expressed it best when he said "they rooted in the plastic bags before he could get home to stick the cuttings." Growth is very rapid and a one gallon plant can be produced in one summer from a strong liner; a 5 gallon in two years. We have large quantities of propagation material available and stock can be built up very rapidly for commercial production. Best planted in front of a dark colored background - dark green conifers or broadleaved evergreen in full sun for best display of the berries in winter. Good anywhere in N.C. (Note - parent plant in the west arboretum near the yellow-twig dogwood easily visible to anyone entering that area).

3. *Cephalotaxus harringtonia* 'Fastigata' K. Koch (Cephalotaxaceae). Not a rare or new plant as it originated in a garden in Japan and was introduced to Europe in 1861 - and is fairly readily available from conifer specialists. It is not commonly seen in commercial production in N.C. though very well adapted to growth throughout the state. The plant in the NCSU Arboretum is 20-25 years old and is 7' tall by the same width. As a young plant it is narrowly columnar with handsome black-green foliage. The plant stays dense and very attractive as it ages. It roots easily (slowly) in high percentages when taken from December through March and stuck under mist with #3 Hormodin (or an equivalent). We can provide large quantities of cuttings. Production of a one gallon plant would take two years from a good liner plant. Best in full sun or light shade. (Note - parent plant in the White Garden north of the visitor center by fence).

4. *Chamaecyparis obtusa* 'Filicoides' Endl. (Cupressaceae). The 'fern-spray cypress' is again not new or rare with origin in 1868 and commonly produced by conifer specialists. It will make a small tree with irregular branches and pendulous limbs of fern-spray green foliage. It will grow throughout N.C. and in Raleigh grows about 1' per year. Best in full sun or very light shade. A yellow foliated cultivar is also available. It roots easily in good percentages when taken from December through March and stuck under mist with #3 Hormodin. Production of a one gallon plant would take two years from a good liner plant. (Note - parent plant east of row of dwarf Loblolly pines toward south end of the conifer planting).

5. *Cryptomeria japonica* 'Cristata' D. Don (Taxodiaceae). An unusual form of the Japanese Cedar or *Cryptomeria* discovered in 1901 with branches forming flattened cockscomb growths of varying size up to 4-5" across. It grows slightly slower than the species *Cryptomeria* with 1-1.5' per year in the Raleigh area. All *Cryptomerias* are susceptible to limb dieout during winter when exposed to high winds and full sun so they are best planted in sheltered areas. It will be hardy throughout N.C. but in colder sections good siting will be essential for success. Cuttings root slowly but in good percentages when taken from December through March and stuck under mist with #3 Hormodin. It is not necessary to take a cutting with cristate growth on it to produce a plant with the cockscombs - any branch will do. Very few woody plants exhibit this unusual flattened growth form - another is the fantail willow - *Salix sachalinensis* 'Sekka'. (Note - parent plant at right side of entrance to visitor center).

6. *Delosperma nubigenum* (Aizoaceae). The "Hardy Iceplant" is a new and very hardy succulent from the mountains of Lesotho in South Africa which is rapidly appearing across the U.S. as a significant new groundcover plant. Iceplants have long been widely used in California for beach and highway plantings by the thousands of acres but those species were not winterhardy in N.C. This species is hardy to -30F, grows 2" tall and spreads to 36" wide. The foliage is yellow-green in summer and turns reddish in winter; bright yellow daisy-like flowers 1" in diameter appear in early summer and sporadically later. It is deep rooted and very drought tolerant once established and will grow in full sun or light shade. Very easily propagated by breaking off any of the small branchlets and rapid growing - one could likely go from one cutting to a thousand plants in a year with no problem. Saleable cellpack trays of good plants can be produced in 6-8 weeks. We constantly give away hundreds of cuttings from our single two-year old clump. It has excellent potential for commercial landscape use on banks, in parking lot areas and other places traditionally occupied by the overdone juniper syndrome. Plants are commercially available from Siskiyou Rare Plant Nursery, 2825 Cummings Road, Medford, OR 97501; also Rocknoll Nursery, 9210 U.S. 50, Hillsboro, OH 45133; and probably a number of other places. Extra cuttings are available from our planting. (Note - parent plant in front of the display lathhouse, in right bed at left front. Now being grown commercially by Johnson Nursery Corporation in Willard, N.C. - wholesale only).

7. *Eleagnus pungens* 'Maculata' Thunb. (Elaeagnaceae). This golden mottled cultivar of this fine evergreen shrub from Japan was awarded a First Class Certificate for excellence by the Royal Horticultural Society in 1891 and is still considered possibly the finest of all the *Eleagnus* cultivars. The plant will grow to 7' in height and 8-10' in width with time. Small highly fragrant flowers are produced in profusion in the fall. It can be propagated by cuttings at most anytime of year except when in most active flush of new growth in early spring. Results can be somewhat variable but generally good percentages of over 70% should be expected. Though not as unstable as some cultivars, off-type branches of all gold or all green will occasionally appear and these should be pruned out as soon as noted.

Growth is of moderate speed with 0.5 - 1.5' per year. Several growers have already propagated from our arboretum plant and large quantities of cuttings are still available. Best in full sun and tolerant of most soils. A tough plant for beach areas when established. (Note - parent plant north of barberry collection).

8. *Hedera helix* 'Gnome' L. (Araliaceae). Of over 100 cultivars planted in the NCSU Arboretum (now the JC Raulston Arboretum) collection, this small-leaved one is among the most distinctive and potentially useful for garden and landscape use in shady areas. The growth remains flatter and closer to the ground than any other in the collection with the best fine texture. Typical of all English ivy cultivars, it is very easy to propagate from cuttings at any time of year and numbers can be built up very quickly. We have distributed many hundreds of cuttings from our one small two year-old plant and hundreds more remain. Highly recommended for commercial production. It would also be a superb cultivar for interior pot foliage plant use. (Note - parent plant in lathhouse on north side of path at south side of the house - near the variegated leucothoe).

9. *Ilex aquifolium* 'Angustifolia' L. (Aquifoliaceae). The English Holly cultivars are generally not considered suitable for best use in N.C. because of the heat, drought, cold (in the mountains) and root problems. This narrow-leaved cultivar was brought in as a rooted cutting and has averaged about 1' of growth per year. It has endured the heat well and went through our record low winter of -7F with no injury at all. It makes a dense but fine-textured plant of great beauty suitable for a smaller garden such as a townhouse or apartment area. Very easily rooted from cuttings at any time of year. Best in light shade (particularly in winter) but ours has full western exposure with reflected light and heat off a parking lot and has done well there also. Would be a very appealing plant in 2 quart to gallon size. Like most hollies, the root system is relatively tender and containers should receive substantial winter protection. (Note - parent plant at right front of visitor center by camellia).

10. *Ilex pernyi* X *cornuta* (Aquifoliaceae). Two plants of this uncommon cross were planted in the arboretum area some 20-25 years ago and today make handsome specimens some 15' tall and as wide. The foliage is dense, dark green, shiny, has never been bothered by any insect or disease problems, and has had no winter problems. It would be an excellent "holly leaf" plant where American holly or Chinese holly would be too coarse or large for use. Growth rate should be about 8-10" per year with good dense form. Will root easily from cuttings in winter and likely in summer. We are going to remove one of the two old plants this winter to gain extra planting space and hate to see the 5,000 cuttings on it wasted - please someone come and take them all (and shear the second one while you are at it if you need 10,000!). (Note - parent plant between viburnum and grasses collections by Nellie Stevens holly hedge).

11. *Illicium parviflorum* (Illiciaceae). The several species of *Illicium* are badly confused in the nursery trade with *I. anisatum floridanum*, and *parviflorum* mixed. See the article by Dr. Paul Fantz in *Nursery Notes* (1986 20(2):37-38) for keys to sort them out. *I. parviflorum* is native to eastern Florida and is the most cold hardy species. In recent winters when privets, cleyeras, pyracanthas, photinias, and other broad-leaved evergreens were killed to the ground - this species came through with no injury at all. Dr. Dirr and others are highly recommending it for much wider production and use. It can reach 40' in height in the wild but is more commonly seen at 7'-10' in cultivation. The flowers are yellowish and appear in early summer - they are not particularly showy or ornamental. Cuttings root easily in summer or winter and young plants grow very rapidly. The 2-3' plants we are distributing were propagated this spring and have produced all this growth in spite of small containers and little fertilizer. Excellent potential as a commercial landscape plant (May the saints forgive me for this recommendation - yet another "big green blob" for the N.C. landscape - sigh!). Tolerant of a wide range of soils and will grow in sun or shade. We have many cuttings available. (Note - parent plant in White Garden near *Cephalotaxus* described above).

12. *Juniperus horizontalis* 'Blue Horizon' Moench (Cupressaceae). The creeping groundcover junipers are among the most widely produced landscape plants in the U.S. with use from Florida to Maine to Washington to California. Recently Mr. Larry Hatch completed a M.S. thesis in our department on this species and assembled the largest and most complete collection in existence - with ca. 55 different named cultivars. Blue Horizon is rarely in commercial production but is the flattest and among the bluest of cultivars. When seen in large plots beside the most commonly grown Bar Harbor (*Wiltonii*) - it is definitely a superior plant. We have distributed hundreds of cuttings to 3 growers this year as well as producing 250 plants for this distribution - hundreds more remain. This superior plant needs wider production. Roots easily from cuttings in winter (or in summer if some mature wood on cuttings is included). Plant in full sun. (Note - parent plant at far east bed of arboretum at beginning of magnolia collection).

13. *Juniperus* X *media* 'Blue and Gold' (Cupressaceae). An unusual conifer with a double color variation - both blue foliated and variegated. Definitely needing specialized taste and handling to be effective in the landscape with its extremely strong color accent. The plant form is a strongly upright vase-shape, (resembling the poplar 'Hetzii') generally taller than wide - growing about 1.5' per year in height and reaching 8-9' with time. Easily rooted from cuttings in winter under mist with #3 Hormodin. A good liner will produce a fine gallon plant with one summer of growth. Older plants will send occasional reversions both to solid gold and solid blue which periodically need removal. Best color and performance in full sun. We have several sizeable plants in the arboretum and quantities of cuttings are readily available. Excellent anywhere in N.C. (Note - parent plant at front of farm to right of entrance drive).

14. *Juniperus sabina* 'Broadmoor' L. (Cupressaceae). A clone selected from thousands of seedlings grown from a population of Russian seed by D. Hill Nursery in Illinois in 1933. A dwarf spreading groundcover juniper which ultimately will increase in height to 2' and spread to 10' wide with great age. We have had mixed success with *J. sabina* cultivars in the arboretum trials, with more disease problems than any of the other junipers. To this point Broadmoor looks good and Dirr states it is resistant to juniper blight. Easily rooted from cuttings in winter. Very widely grown on the west coast as a popular commercial groundcover - needs greater use in the west half of N.C. Must have full sun to avoid disease problems. (Note - parent plant at northeast corner of arboretum near corkscrew willow).

15. *Lagerstroemia fauriei* Koehne (Lythraceae). This species of crepe myrtle was collected on the southern Japanese island of Yakushima where it is a rare endemic plant by a National Arboretum/Longwood Gardens collecting team in the 1950's for its increased cold hardiness, disease resistant foliage, and beautiful red flaking bark. Several of the original collection seedlings found their way to NCSU in the 60's and now make superb 25' specimens in the arboretum - possibly the largest plants of this species in the U.S. The cuttings being distributed come from the seedling plant now growing in the townhouse model garden. It has extremely dark red bark and we receive probably more questions from visitors admiring this plant than any other single plant in the arboretum each year. It should be completely hardy anywhere in N.C. Cuttings root with somewhat more difficulty than the common *L. indica* - but softwood cuttings should give 70%+ results with 6-8 weeks in a mist bed. (*L. fauriei* is notable for resprouting of plants from severed roots - so if available, root cuttings in winter would likely give very good results). Plants grow very rapidly with 2-4' of growth per year and the red bark is visible in the third year from cuttings.

16. *Leibnitzia anandria* (L.) Nakai (NA 56774). A herbaceous composite wildflower from the Korean collecting expedition which I eliminated at the very last minute (after plants were already labeled and bagged) from the distribution feeling that it: (A) had too little ornamental potential to justify grower evaluation, and (B) had the potential to become a free-seeding undesirable weed. Not available - all plants destroyed and not even in the arboretum collection.

17. *Mallotus japonicus* Muell.-Arg. (NA 56525) (Euphorbiaceae). A medium size deciduous shrub from our 1985 Korean expedition. Likely not going to be hardy in the western half of the state; and likely most useful in seacoast beach areas where it is very tolerant of wind and salt spray. Large tropical looking foliage. Male and female flowers produced on separate plants, and not particularly showy. Needs full sun. Propagated by seed which germinate well with no treatment.

18. *Patrina scabiosaefolia* Fisch. (NA 56738) (Composite). This herbaceous perennial is unknown in the U.S. but is a popular and widely used plant in China, Japan, and Korea. It is used as a commercial cut flower plant for its bright yellow long-lasting blooms important in the florist industry. Along with the chrysanthemum, it is one of the five famous flowers of autumn in China. It will be useful for the perennial border for autumn color, and flowers can be dried for winter use also. Plant in full sun in a soil with good drainage. As plants age they can be divided to start new plants and it also grows very readily and easily from seed. These plants came from the 1985 Korean expedition - from a collection on the Taean Peninsula on Korea's west coast on low hills overlooking the Yellow Sea.

19. *Photinia villosa* (Thunb)DC (NA 56669) (Rosaceae). *P. villosa* is occasionally grown as an ornamental as a small deciduous tree with red fruit in fall and winter. It grows rapidly as a young plant, slower when older - to a height of 15-20' with spreading and arching branches. White flowers cover the plant in spring, and panicles of red fruit in fall. It is easily propagated by softwood cuttings under mist with #1 Hormodin in early summer. It should do well anywhere in N.C.

20. *Prunus mume* Siebold & Zucc. (seed) (Rosaceae). I have often lectured and written about this most favorite plant of mine, the flowering apricot, which blooms in January with white, pink, and red highly fragrant flowers. The Japanese consider the flowering apricot their finest flowering tree and have hundreds of cultivars. Our plants set a heavy seed crop this spring and we are distributing those to let people try the species for themselves. Flower color of the seedlings will be variable but all are beautiful. Stratify the seed in moist peat (or paper towels) in plastic bags in the refrigerator for 3-4 months and sow in a propagation area - in a greenhouse at any time, or outdoors in spring. We grew a crop last year in which seed sown in February were grown in quarts, transferred to gallons in May and plants reached 6-8' by fall. Names cultivars can be propagated by softwood cuttings in early summer or budded on purple leaf plum understock in summer. We have extra seed available on request, and an abundance of vegetative wood of several cultivars. Plants grow rapidly when young - 4-7' per year and are the size of redubd trees at maturity. Best in full sun. The fruit are edible but not very palatable (unless soaked in alcohol for several years as the Japanese do).

21. *Rosa wichuriana* Crop. (NA 56735) (Rosaceae). This species was introduced to Europe from Japan in 1891, and later to the U.S. by the ARnold Arboretum. These seedlings are from our 1985 Korean expedition - a population growing on the beach at high tide line - so will be very salt and drought tolerant. The plant forms a procumbent shrub reaching 1-2' in height with time with semi-evergreen foliage (evergreen on the coast, deciduous in the mountains). An excellent groundcover plant for large areas like highway banks, soil erosion control, et. as it roots from the stems as it grows - also very disease resistant. Flowers are white and red fruit color the plant in fall. Very easily rooted from either softwood cuttings in summer under mist, or from hardwood cuttings in winter.

22. *Scilla scilloides* (Lind.) Druce (NA 56626) (Liliaceae). This uncommon (in cultivation) bulbous plant was collected in Korea last fall as one of the most common and widespread flowering plants we encountered during the several months there. Most Scillas bloom in spring but this one flowers with 6-10" racemes of pink/lavender blooms in August and September. It should do very well throughout N.C. and is best in full sun with moisture and drainage. We have thousands of seedlings of anyone desires further plants for production. Bulbs will multiply and can be divided, or seed collected and sown as soon as ripe will germinate easily. It will likely naturalize and spread in the garden by itself.

23. *Spiraea japonica* 'Fastigata' L. (Rosaceae). *S. japonica* cultivars are widely grown deciduous shrubs in the nursery industry with the most popular ones the dwarf pink and red flowered forms. This plant came to N.C. last year via the University of British Columbia introduction program from Hilliers Nursery in England. This cultivar grows strongly upright forming a vase shaped plant 4-5' in height with exceptionally wide flat heads of white flows in summer. It roots very easily from either softwood cuttings in summer or hardwood cuttings in winter and stock can be built up very quickly. We have large quantities of cutting wood available. Best in full sun and tolerant of a wide range of soils. It will grow well anywhere in N.C. (Note - planted in the White Garden between the specimen cut-leaf maple and the fence).

24. *Styrax americana* var. *pulverulenta* (Michaux) Perkins. (Styracaceae). This uncommon N.C. native shrub is rarely showy in its native habit with sparse flowering and loose open habit in woodland stream bottoms. When grown in the landscape in full sun it forms a dense multiple stemmed deciduous shrub reaching 6' in height and 6' wide covered with white flowers in June. Normally grown from seed after stratification, but cuttings have rooted easily and well for us when taken in early summer with #1 Hormodin under mist. Most *styrax* have problems in surviving the first winter from cuttings unless a flush of growth is achieved before they go dormant. This can be provided by growing them under lights in the greenhouse in the fall, or by rooting in deep flats where they can remain undisturbed until breaking dormancy the following spring. These plants rooted so fast and will that most have produced 2-4" flushes of growth in the propagation bed and will likely survive well with average handling. It will be hardy anywhere in N.C. We have a large vigorous plant with large quantities of cuttings available. (Note - parent plant in west arboretum in first bed south of the old specimen *Lagerstroemia fauriei* plants).

25. *Tricyrtis dilatata* Nakai. (NA 56689) (Lilaceae). This rarely-grown Korean species of Toad-Lily is far more attractive than its common name would indicate. A herbaceous perennial reaching 1-3' in height and blooming with pale lavender flowers in late summer. The flowers are most unusual and delicately beautiful. Best seen in a shady, moist location similar to that for *hosta* and *astilbe*. Plants can be grown from seed sown when fresh, from division of clump rhizomes when dormant, or from softwood cuttings under mist in summer. It will grow anywhere in N.C.

26. *Vinca minor* 'La Grave' L. (Apocynaceae). The blue-flowered evergreen periwinkle is one of the most popular groundcovers in the landscape industry. The wild species is most commonly grown though several fine cultivars exist with other flower colors (white, purple) and several foliage variants (golden, variegated gold or silver). This fine new European cultivar, 'La Grave', rated very high in recent Royal Horticultural Society trials with its large deep green glossy foliage and abundant blue flowers. It can easily be propagated year-round from cuttings, or by digging an established bed where the plant has rooted to the ground along the stems and cutting into pieces. This much superior form should be grown to gradually replace the wild species now commonly grown. Our one-year old plant is several feet in diameter now and could provide a limited quantity of cuttings - but stock can rapidly be built up. It will grow anywhere in N.C. and is best in medium shade, but can tolerate full sun (though it will scorch in extreme cold in sun if not under snow cover). (Note - parent plant in *Hamamelis* collection bed - with other *Vinca* cultivars).

BOOK NEWS:

While recently talking to Ken Moore (UNC Botanical Garden) he shared his discovery of a plant related book that would likely be of interest to our Friends who enjoy fiction reading, and particularly the genre of mystery novels. An English novelist (where else?), Mr. John Sherwood, has started a series of books with plants and gardening as key parts of the plot called the 'Celia Grant Mysteries'. Two books are now available in most major bookstores in paperback form from Ballantine Books for \$2.95 and undoubtedly more will follow in the future. From the back cover of each volume, they involve the following themes:

GREEN TRIGGER FINGERS (1984) - "Celia Grant, an attractive widow, operates a small nursery and gardening service in the village of Westfield, England. The people of Westfield - quiet, proper, and addicted to gossip - are shocked by the recent murder of the Emersons, who were found hacked to death in their garden with their own axe. Then Celia makes an unscheduled visit to the Towers, a once-grand Victorian estate. Her sharp eye can't help but notice that the short May-blooming irises and the taller, June-flowering ones she dug up and separated last fall are all together again, in mixed clumps! There's also a bare patch of freshly dug soil where the *Alstromeria* used to be. Under that soil - several feet under, Celia discovers as she digs - is another dead body. Gardeners are naturally curious. So it's not too surprising that Celia Grant, professional horticulturist, becomes Celia Grant, amateur sleuth. What is surprising is how much danger she finds herself in - as she tries to discover who in quaint old Westfield has gone way beyond a green thumb."

A BOTANIST AT BAY (1985) - "Celia Grant, botanist and amateur sleuth, is on her way to New Zealand, where her daughter is about to have a baby. She also plans, at the request of her friend the Duchess Hermione, to look for Uncle Bertie - Lord Albert Melton - whose strange disappearance is made even more puzzling by his photos of some very rare plants and a very naked redhead. Upon her arrival, Celia learns that the redhead is Rosie Murphy, a radical member of New Zealand's Parliament, and a leader of an environmentalist battle against a dam that would endanger certain rare wild plants. Trouble is that Celia and her new friend, fellow botanist Tom MacRae, are certain those plants - the very ones found in Uncle Bertie's photos - aren't wild, aren't endangered, and were obviously recently transplanted at the proposed dam site! Suddenly Rosie Murphy is murdered, and Celia Grant is the prime suspect! Can Celia combine her horticultural and investigative skills to learn the truth about the plants, find Uncle Bertie, and clear her name?"

A flier from The University of Massachusetts Press (Box 429, Amherst, MA 01004 - 413-545-2217) discussed a series of three new books by Ann Leighton on the history of American gardens which would be useful to anyone interested in historic garden restoration or general garden history. They are **EARLY AMERICAN GARDENS** (1986. 442 p. ISBN 0-87023-530-3, paperback \$14.95); **AMERICAN GARDENS IN THE EIGHTEENTH CENTURY** (1986. 514 p. ISBN 0-87023-531-1, paperback \$14.95); and **AMERICAN GARDENS OF THE NINETEENTH CENTURY** (1987. 456 p. ISBN 0-87023-532-8, paperback \$14.95). The flier states: "written by Ann Leighton, a noted authority on historic gardens, this handsome and scholarly 3-volume series explores American gardens and gardening of the 17th, 18th, and 19th centuries. The first two books, originally issued in hardback in 1970 and 1976, are considered classics in the field. They are now available in paperback for the first time. All three volumes are abundantly illustrated and each contains an extensive appendix that lists and describes all the plants commonly cultivated in gardens of the period. The late Ann Leighton was a landscape architect and garden consultant who lived for many years in Ipswich, MA." The books can be ordered directly from the above address (+ \$1.50 for handling and shipping per order) and they have also been available as special selections for members of the Garden Book Club.

In the area of garden history - I also received a notice of a new periodical, BULLETIN OF AMERICAN GARDEN HISTORY - published privately by Ellen Richards Samuels. The flier reads: "I began to produce this publication to meet the needs of a growing and diverse group that are interested in and involved with American gardens and garden history. They are scholars, horticulturists, landscape architects, garden designers, museum professionals and volunteers, and many others. My aim is to provide news of events, publications, research and developments at historic sites. As I travel extensively to research my books (The American Woman's/Man's Garden) and lectures I have had the opportunity to see the surge of interest and effort in garden history." The issue I received was 6 pages in length, and had 11 articles including one by Mr. Bill Hunt of Chapel Hill on Elizabeth Lawrence's garden. The subscription rate for one year (4 issues) is \$7.00 from: Bulletin of American Garden History, P.O. Box 397A, Planetarium Station, New York, NY 10024.

Enjoyed quotes:

"One of the advantages of being disorderly is that one is constantly making exciting discoveries" - A. A. Milne

In my Physiology of Landscape Plants course I distribute a list to students of my most highly recommended "Reference Books for use of Landscape Plants in the N. C. Piedmont" (which will be reprinted in a future issue of the newsletter after I do a revision this spring). Among these books has been 100 GREAT GARDEN PLANTS by William H. Frederick, Jr., published in 1975 (220 p., 109 color photos). My discussion of this book goes as follows: "Although less extensive in number of plant species than the other books listed here, I still highly recommend it. Written by a superb plantsman, grower, and landscape architect, it covers the best plants for garden use by describing not only plant growth characteristics, but how to design with them - color combinations, companion plants, mood creation, etc. A great book to curl up with beside a fireplace with crackling fire in winter when it's snowing, with a big tub of buttered popcorn, and read away - paradise! All of the plants mentioned will do well in the N.C. Piedmont and Mountains, and most (probably 80%+) also on the coast." A recent announcement from Timber Press (9999 S. W. Wilshire, Portland, OR 97225 - 503-292-0745) covered a new "edition" of the book which includes revision of the original recommendations in light of the severe winters which have hit the eastern U. S. in recent years. The book is changed only by the addition of a 3 page introduction which discusses the colder winters and his analysis of which plants he feels are no longer adaptable to the region originally discussed - either from lack of hardiness or new insect and disease problems which have developed since the book was originally written. It is available for \$27.95 + \$2.50 for shipping.

Another newly published book from Timber Press (address as above) which will have value to nurserymen and gardeners interested in primarily native plants is COLLECTING, PROCESSING, AND GERMINATING SEED OF WILDLAND PLANTS by James and Cheryl Young (1986, 230 p. \$24.95 + shipping). "Dr. Young has achieved worldwide recognition and respect among professional natural resource managers as one of the most knowledgeable workers with native North American seeds. His wife and co-author has been closely associated with this work and in organizing and compiling the extraordinarily diverse literature and findings from throughout North America." The book includes field surveying and marking plants for seed collection, timing of seed collection, means of harvesting, seed cleaning techniques, storage techniques, seed stratification, germination testing, sowing requirements; and the second half of the book focuses on specific tree, shrub, herbaceous, and grass seed by genus and family.

Almost every horticulturist in the country by now knows the name of Dr. Carl Whitcomb who has revolutionized our thinking about countless concepts of growing and handling woody plants with his original and innovative research when he was at the University of Florida, and more recently at Oklahoma State University. His book KNOW IT AND GROW IT (1983) is one of the best references on woody plants for use in the southeast U.S. and is widely used as a teaching manual. His PLANT PRODUCTION IN CONTAINERS (1984) summarizes years of his research with container systems and is a valuable nursery industry reference. His third book has just come out and it will be useful to professional landscape contractors and maintenance people, as well as serious amateurs who want to know the latest thinking about handling of woody plants. The book LANDSCAPE PLANT PRODUCTION, ESTABLISHMENT, AND MAINTENANCE (1986, 680 p. ISBN 0-9613109-2-8, \$28.00 + \$1.50 postage from Lacebark Publications, Rt. 5, Box 174, Stillwater, Oklahoma 74074) covers the many areas of research in his program in recent years such as: bare-root vs. balled/burlaped vs. containerized vs. "Field-Grown" containers; plant nutrition, weed control, root pruning, when and how to transplant, use of soil amendments, staking, grade changes, pruning, etc. HortIdeas reviewed the book and commented on its very lengthy discussions - "we think that if he could be persuaded to write a briefer "summary for the masses", an instant horticultural best seller would be born. In the meantime, conscientious home landscapers will find it worth the extra effort to wade through this big book, to discover ideas and suggestions unpublished elsewhere. No doubt, some of the information will make it into Ortho and HP guides within the next decade -- but there's no need to wait until then!"

A very specialized technical reference which may be of interest to a select few readers (Tom Dilatush and two others) is PLANT CHIMERAS by Richard A. E. Tilney-Bassett (1986, 192 p. ISBN 0-7131-2936-0, \$19.95 + shipping) from a bookselling source new to me - Edward Arnold, 3 East Read Street, Baltimore, MD 21202 (301-539-1529) - with many other outstanding and unique technical plant references. "Plant chimeras are organisms containing at least two genetically different tissues, and are common among higher plants (note - many of our variegated plants are due to this phenomenon and they are common in the "dwarf" conifer area). Tilney-Bassett gives you a clear, jargon-free introduction to the origin, induction, history, main steps in the analysis of chimeras, explanation into their structure, development and genetic behavior and ways of classifying and manipulating them. Contents: The chimera concept/Maristems/Sectorial and mericlinal chimeras/Classification of periclinal chimeras/Analysis of periclinal chimeras/Cytochimeras/Variiegated-leaf chimeras/Potato chimeras/Flower chimeras/Fruit chimeras/Other chimeras/Lessons and prospects/References/Index to subject/Index to Taxa/Index to authors.

Another new bookseller specializing in old and out-of-print titles has just issued his first catalog listing - Raymond M. Sutton, Jr., 430 Main Street, Williamsburg, KY 40769 (606-549-2288 evenings). The 69 page catalog (\$1) lists 607 choice books with about 300 of those of interest to our readers - gardening, irises, landscaping, trees and shrubs, azalea, rhododendrons, and camellias. Iris is a major speciality topic with 34 different titles listed. I lusted after ASIATIC MAGNOLIAS IN CULTIVATION (1955) at \$200 - but not enough to spring for it. Many choice goodies to tempt one. Perennials are the hot garden item today with countless nurseries springing up to produce the plants, a profusion of symposia to disperse information, and many, many books coming into print. Sutton also sent a flier on another book in this area scheduled for print in December 1986 - THE PERENNIAL INFORMATION (?) - supposedly listing over 5,000 plants including 4,000 perennials, 400 small shrubs, 100 vines and climbers, 1,000 wildflowers, 300 herbs, 700 alpine, 300 bulbs, 300 ornamental grasses (I assume categories overlap to get this count). Authors are Majella Larochelle, Vee Sharp and others; softbound \$25.00 + \$2.00.

For those who travel throughout N. C. and are looking for a good guide to use for biology and science centers open to the public - the N.C. Academy of Science, Inc. - has just published A GUIDE TO NC SCIENCE CENTERS. This 2nd edition of this book used by schools and universities to plan travel tours now includes several maps and subdivisions for the mountains, piedmont, and coastal areas. Eighty-four science centers and state parks are described. (Including - The NCSU Arboretum (now the JC Raulston Arboretum)!). The price is \$5.00 + \$1.00 for handling from Dr. Sue Stephenson, Administrative Assistant, NCAS, Box 2418, Durham, NC 27705.

The July 86 issue of House and Garden Magazine had an article (Principles for Garden Pleasure, p. 99-103, 150-155) by the superb plantsman Sir Peter Smithers about the garden he has created for himself in Switzerland over the last 15 years. It is a fascinating philosophical discussion of the art and science of garden making that I would highly recommend to readers. Among many other things, he defines the "Ten Commandments of Garden Creation" he has used in his garden.

1. The garden shall be a source of pleasure to the owner and his friends, not a burden and an anxiety.
2. It must therefore be planted so as to reduce labor to an absolute minimum, and the amount of work must diminish as the owner grows older.
3. any plants like palms or conifers that would contradict the nature of the surrounding deciduous forest should be rigidly excluded.
4. All plants in the garden must be of a permanent kind: no annuals, biennials, or plants requiring liftig in winter or special attention.
5. The planting must be dense so that the plants live in a self-sustaining community with one another, with little space for weeds to grow and little need for support.
6. The plantings will be varying compositions according to the lie of the land with no repetition. The visitor should be surprised at every turn of the path with a new plant community different from what he has seen so far.
7. At all levels planting distances are such as to form a canopy.
8. No plant is added to the garden if there is in existance an obtainable superior form.
9. Difficult plants, if not successful after a fair trial, should be abandoned for easier subjects of which there are plenty.
10. No plant is ever sold or exchanged. All plants are available to serious gardeners, stock and labor permitting. The pleasure of owning a fine plant is not complete until it has been given to friends.

There are a hundred quotes I year to add here - but cannot. To brutally limit myself to only two examples: "We must rely to some extent on books. But gardening books should be treatd with the greatest reserve. . No

gardening book written in a library by somebody who never got their hands dirty in the garden is much use to us. But a more important reason to treat books with reserve is that what is true of a plant under conditions slightly different from ours may be quite misleading. I once asked a distinguished authority . . on rhododendrons about the hardiness of a plant. . . His scathing - and correct - reply was "Every pant is hardy until I have killed it myself.", and the wonderful summary "The art of gardening consists in uniting the knowledge, understanding, and love of plants with an equal understanding of the local environment and a modicum of aesthetic sensibility." No better definition could be formulated. Search out this magnificent article and enjoy it yourself.

Our resident computer whiz/taxonomist plantsman extraordinare, Larry Hatch, contributed information about a new newsletter for computer gardening. "Home computers are beginning to make their way into the garden. While a weed-pulling computer may be still far off in the future, software is now available that enables computers to provide a numer of services for gardeners. THE ONLINE GARDENER is a bimonthly newsletter that provides readers with an overview of what's available in garden software both for home gardeners and for small commercial gardening or landscaping operatios. For about half the price of a good wheelbarrow, you can buy software that will do garden layouts based on crop rotation, analyze disease and insect problems, keep a regular journal, and give you access to a hugh horticultural database." A subscription is \$12.00 for one year (6 issues): Gordon Perry, The Online Gardener, Nelson village, Munsonville, NH 03457 (603-847-9550). Larry says it gets better with each issue and highly recommends it. (Thank heavens for a younger generation - though I use my compjter almost daily now, it still is an slien that terrifies me - to our students it is as comfortable and as often used as a hoe was to me at that age).

This section of the newsletter is used to review other publications, but I'd like to slip in here a "review" of our newsletter received from Mr. Ridgway Goodwin in Pennsylvania. "Enclosed please find my check for membership in the 'Friends' which I very much look forward to as a new source of horticultural information, market hype, metaphysical and para-normal phenomenon, alchemy, as well as outrageous and improbable jokes and stories . . .". Thanks for brightening my day when I received your letter Mr. Goodwin - best review I've ever gotten!

Several years ago when visiting in Oregon, Jean Iseli shared a copy of a most wonderful story called THE MAN WHO PLANTED TREES with me that I have passed on to many other people since. It is such a fine story I had considered trying to publish it in its complete form in a long issue of this newsletter, but did not know about copyrights, original source, etc. I just discovered that it was originally published in 1954 in VOGUE magazine under the title "The Man Who Planted Hope and Glee Happiness" and has in years since been published and sold by Friends of Nature, Brooksville, ME 04617 in a plain booklet for \$2.00. It has recently been published in a hardback book with wood engravings by Michael McCurdy and is available from Chelsea Green Publishing Company, Chelsea, VT. 05038 for \$15.00. "This allegorical tale by the French writer Jean Giono has become a closet classic among conservationists, inspiring reforestation efforts around the world. It is the story of Elzeard Bouffier, who, having lost his family, retreats to a desolate region in Provence, France with his flock of sheep. He builds a stone house and commences the work of a lifetime; the planting of hundreds of thousands of acorns. In the decades encompassing the two world wars he manages in complete isolation and anonymity, to transform the landscape. People once again return to the region - full of life, hope and happiness." This is an inspiring story of a man who reforested thousands of acres singlehandedly. Every friend of the trees will enjoy this book and it is an effective story for teaching children (of all ages) and a very fine gift. If you've never read it - I assure you it is a must!

NEW CATALOGS AND PLANT SOURCES OF INTEREST:

One of my most enjoyable experiences in years was participating in the series of symposia sponsored by the New York Botanical Garden this fall with lectures in New York City, Boston, Chicago, and Washington, D. C. I had the pleasure to be able to discuss "Out-of-the-Ordinary Plants" and the concepts of why they are hard to find and how one can do so. As a part of my presentation handout I reworked our old sources list, eliminating purely herbaceous materials, tree specialists, etc. - and added new sources we had discussed in this section of the newsletters over recent year. So far our Friends - here is the new list:

MAIL ORDER SOURCES OF UNCOMMON SHRUBS

Adams Nursery, Inc., Box 606, Westfield, MA 01086. (Lilacs)

Alpenglow Gardens, 13328 King George Highway, Surrey, B. C. Canada V3T2T6 (Rare shrubs, dwarf conifers, \$1)

Antique Rose Emporium, Rt. 5, Box 143, Brenham, TX 77833 (own root historic roses, \$2)

Baldsiefen Rhododendrons, Box 88-H, Bellvale, NY 10912 (large selection of rhododendrons)

Bill Dodd's Rare Plants, P.O. Box 377, Semmes, AL 36575 (native azalea species and hybrids, many rare eastern U.S. native plants)

Buchholz and Buchholz Nursery, Route 2, Box 80, Gaston, OR 97119 (liners of many choice rare plants)

Camellia Forest Nursery, P.O. Box 291, Chapel Hill, NC 27514 (many rare Asiatic shrubs, \$1)

Carroll Gardens, 444 East Main Street, Westminster, MD 21157 (extremely wide plant array, \$1)

Chambers Nurser, 26874 Ferguson Rd., Junction City, OR 97448 (Rhod. & Azaleas)

Country Gardens Nursery, Rt. 2, Box 150, Mobile, AL 36609 (Large azalea list, SASE for list)

Daystar, Litchfield-Hallowell Rd., RFD 2, Litchfield, ME 04350 (Many conifers, shrubs, ericaceous materials, uncommon trees, \$1)

Del's Japanese Maples, 4691 River Road, Eugene, OR 97404 (Many Japanese maple cultivars)

Dogwood Hills Nursery, Rt. 3, Box 181, Franklinton, LA 70438 (Over 1,000 varieties of azaleas and camellias, \$1)

Dutch Mountain Nursery, 7964 N. 46th St., Rt. 1, Augusta, MN 49012 (Seedlings of bird and wildlife plants, many natives, \$.50)

Dwarf Tree Nursery, 17771 Synder Rd., Chagrin Falls, OH 44022 (plants for bonsai culture, but many unusual species which are suitable for the landscape as well)

Eastern Plant Specialties, P.O. Box 40, Colonia, NJ 07067 (many choice rare species, \$2)

Eco-Gardens, P.O. Box 1227, Decatur, GA 30031 (S.E. U.S. natives and Asian species, many rarities)

Ecotones - Rare and Native Plants, P.O. Box L, Kirbyville, TX 75956 (many rare S.E. and S.W. U. S. native plants)

ForestFarm, 990 Tetherow Road, Williams, OR 97544 (Seedlings of large range of woody plants, low prices, \$1)

Frank B. White, Jr., 6419 Princess Garden Parkway, Lanham, MD 20706 (huge list of azaleas, \$1)

Girard Nurseries, P.O. Box 428, Geneva, OH 44041 (many choice woody plants)

Gordon W. Severe Nursery, Rt. 4, Box 173-1, Hillsboro, DE 19966 (huge list of azaleas, 3" transplants)

Gossler Farms Nursery, 1200 Weaver Rd., Springfield, OR 97477 (best list of magnolias in U.S., many choice assorted plants, \$1)

Greer Gardens, 1280 Goodpasture Island Rd., Eugene, OR 97401 (azaleas, rhododendron, Japanese maples, dwarf conifers, Kalmias, many uncommon plants, \$1)

Hager Nurseries, Inc., RFD 5, Box 641D, Spotsylvania, VA 22553 (evergreen azaleas, \$2)

Hall Rhododendrons, 1280 Quince Drive, Junction City, OR 97448 (rhododendrons, \$1)

Hass Nursery, 256 Ervin Rd., Philomath, OR 97370 (azaleas, rhododendrons, pieris)

Heard Gardens, Ltd. 5355 Merle Hay Road, Des Moines, IA 50323 (lilacs)

High Country Rosarium, 1717 Downing St., Denver, CO 80218 (historic and species roses, \$1)

Hillhouse Nursery, Kresson-Gibbsboro Rd., Marlton, NJ 08053 (azaleas)

Hillside Rhododendron Gardens, 2353 Hwy 34, Manasquan, NJ 08736 (rhododendrons, Dexter Hybrids)

Historical Roses, 1657 W. Jackson Street, Painesville, OH 44077 (historic roses)

Holbrook Farm & Nursery, Rt. 2, Box 2238, Fletcher, NC 28732 (dwarf conifers, some shrubs, \$2)

Holly Hills, Inc., 1216 Hillside Rd., Evansville, IN 47711 (evergreen azaleas, rhododendrons, hollies, \$1)

Honey Run Conifers, Honey Run, Layton, NJ 07851 (dwarf conifers)

Hortica Gardens, P.O. Box 306, Placerville, CA 95667 (Satsuki and other azaleas, many maples, dwarf conifers, \$1)

James Harris Hybrid Azaleas, 538 Swanson Dr., Lawrenceville, GA 30245 (azaleas)

J. Blaauw & Co., P.O. Box 33, Red Bank, NJ 07001 (azaleas and rhododendrons)

Lamb Nurseries, E. 101 Sharp Avenus, Spokane, WA 99202 (dwarf shrubs)

Louis Smirow & Son, Rt. 1, Huntington, NY 11743 (tree peonies, \$2)

Lowe's Own Root Rose Nursery, 6 Sheffield Road, Nashua, NH 03062 (roses)

Lund Brothers Nursery, 1008 Cowpath Road, Hatfield, PA 19440 (dwarf conifers)

Matsu-Moniji Nursery, P.O. Box 11414, Philadelphia, PA 19111 (rare maples and pines, \$1)

Miniature Roses, Inc., Jamison Hill Rd., Clinton Corners, NY 12515 (miniature roses)

Mellinger's, 2310 W. South Range Rd., North Lima, OH 44452 (wide range of materials)

Miniature Plant World, Elder Avenue, Sardis, B.C. Canada VOX1YD (miniature roses)

Nor'East Miniature Roses, Inc., 56 Hammond St., Rowley, MA 01969 (miniature roses pot grown)

Nuccio's Nurseries, 3555 Chaney Trail, P.O. Box 6160, Altadena, CA 91001 (camellias and azaleas)

Powell's Gardens, Rt. 2, Box 86, Princeton, NC 27569 (dwarf conifers & some shrubs, \$2)

Rakestraw's Gardens, 3094 S. Term Street, Burton, MI 48529 (dwarf conifers & some shrubs, \$1)

Reath Nursery, 100 Central Blvd., Box 521, Vulcan, MI 49692 (tree peonies, \$1)

Rhododendron Species Foundation, P.O. Box 3796, Federal Way, WA 98003 (largest selection of rhododendron species in world available to members of the foundation)

Rocknoll Nursery, 9210 U.S. 50, Hillsboro, OH 45133 (some dwarf conifers and shrubs)

Rosehill Farm, Box 406, Balena, MD 21635 (miniature roses)

Roses of Yesterday and Today, 802 Brown's Valley Rd., Watsonville, CA 95076 (old roses, \$2)

Salter Tree Farm, Rt. 2, Box 1332, Madison, FL 32340 (native S. E. U. S. plants)

Sequoia Nursery, 2519 East Noble Ave., Visalia, CA 93277 (miniature roses)

Siskiyou Rare Plant Nursery, 2625 Cummings Rd., Medford, OR 97501 (dwarf plants for rock gardens, \$2)

Sonoma Horticultural Nursery, 3970 Azalea Ave., Sebastopol, CA 95472 (rhododendrons, azaleas, companion plants, \$2)

Stubbs Shrubs, 23225 SW Bosky Dell Lane, West Linn, OR (evergreen azaleas)

The Bovees Nursery, 1737 S. W. Coronado St., Portland, OR 97219 (rhododendrons, azaleas, rare shrubs and trees, \$2)

The Cummins Garden, 22 Robertsville Rd., Marlboro, NJ 07746 (Rhododendrons, azaleas evergreens, \$1)

The Sweetbriar, P.O. Box 25Z, Woodinville, WA 96072 (rare rhododendrons, dwarf conifers, \$2)

Transplant nursery, Box 16, Parkertown Rd., Lavonia, GA 30553 (azaleas, rhododendrons, \$1)

Tworbly's Nursery, Inc., 162 Barn Hill Rd., Monroe, CT 06468 (dwarf conifers)

Washington Evergreen Nursery, Box 388, Leicester, NC 28748 (dwarf conifers and companion plants, \$1)

Wayside Gardens, Hodges, SC 29695 (extremely wide range of plants, beautiful catalog)

We-Du Nurseries, Rt. 5, Box 724, Marion, NC 28752 (few shrubs but many choice plants, \$1)

White Flower Farm, Litchfield, CT 06759 (wide range of plants, \$5)

Woodlanders, 1126 Colleton Ave., Aiken, SC 29601 (extremely wide range of very rare unique plants, \$2)

SOURCES OF TREE AND SHRUB SEEDS

Callahan Seeds, 6045 Foley Lane, Central Point, OR 97502

Chiltern Seeds, Bortree Stile, Ulverston, Cumbria LA127PB England

Greenfingers Tree Seeds, Indigo Road, Stoneycroft, Liverpool L1365H England

Herbst Seed, 108-80 Candlewood Isle, New Fairfield, CT 06812

Lawyer Nursery, Inc., 950 Hwy. 200 West. Plains, MT 59859

Plants of the Southwest, 1570 Pacheso St., Santa Fe, NM 87501

Samlesbury Tree Seeds, The Boat House, Pottes Lane, Samlesbury, Preston PR50VE, England

Schumacher Co. Inc., Sandwich, MA 02563-1023

Seeds of Bamber Bridge Ltd., Lower Seed Farm, Brindle Road, Bamber Bridge, Preston PR56AP, England

The Old Farm Nurseries, H. den Ouden & Son b.v., P.O. Box 1, 2770 AA Boskoop-Holland

Thompson & Morgan, Inc., P.O. Box 100, Farmingdale, NJ 07727

Wild Seed, 2021 South Forest Avenue, Tempe, AZ 85282

World Seed Service, J. L. Hudson, Seedsman, P.O. Box 1058, Redwood City, CA 94064 (\$1)

While at the D. C. section of this speaking circuit, I met an individual from Environmental Concern, Inc.,

P.O. Box P, 210 West Chew Avenue, St. Michaels, MD 21665 (301-745-9620 or 745-2082) who gave me two most interesting catalogs. They specialize in "environmental" plants for habitat reclamation using native plants. The two catalogs were: Shrubs and trees for wildlife habitat development, and Plants for landscaping shores, ponds, and other wet areas. Though both are excellent lists, the latter in particular contains many items I cannot imagine where else a contractor could go to obtain nursery-grown materials in commercial quantities - things like Duck Potato, Sagittaria latifolia, Saltmarsh Hay, Spartina patens, Wild Rice, Zizania aquatica, and Solidago sempervirens - the Seaside Goldenrod, one of the few flowering plants suitable for seashore areas. I suspect they are likely wholesale only - but for contractors looking for coastal or beach landscape materials, or for wildlife - this firm should be excellent.

For those interested in finding roses - it would be hard to beat the publication - Combined Rose List 1966 by Beverly Dobson. It is a condensed, annually updated compilation of roses in commerce and cultivation and where to find them. Each rose variety name is accompanied by data on classification, color class, name of hybridizer and year of introduction if available, as well as information on the registration status, and is cross-referenced to code names and alternate names where these exist. Each variety known to be available commercially is keyed to a listing U. S., Canadian and selected foreign sources. The price is \$7.50 for this 6 X 9 paperback containing over 5,000 rose species and cultivars. In addition, she offers a bi-monthly Bev Dobson's Rose Letter with miscellaneous rose information at \$7.50 for a year (6 issues). Write to Beverly R. Dobson, 215 Harriman Road, Irvington, NY 10533 (914-591-6736).

Several times in the past I have mentioned bamboo sources and now have two additions to make to these recommendations. I received a price list from Robert L. Perry, a graduate horticulturist and registered landscape architect specializing in bamboos in Florida. He now carries about 80 different types and prices vary from \$5.98 on up - with some plants in as long as 25 gallon containers. His address is: Sunset Nursery, Inc., 4007 Elrod Avenue, Tampa, FL 33616 (813-839-7228 or 837-3003). Also - in the University of Washington Arboretum Bulletin - Summer 1986 (49:2) was an article "An introduction to Bamboo Part II, Common Bamboos in Seattle" by Daphne Lewis with mention of a Source List of Bamboos with 23 sources, of which 12 will ship. It is available free with a self-addressed, stamped envelope to the American Bamboo Society, 1101 San Leon Court, Solana Beach, CA 92075. While mentioning these sources, perhaps it is also appropriate to mention another article encountered this fall in the Ornamentals Northwest Newsletter, Fall 1986 10(2):16. - "Chemical eradication of golden bamboo, *Phyllostachys aurea*". Anyone who has bamboo, will usually reach a point where they wish for some way to control it. Other than by deep physical barriers, other alternatives are few and limited in effectiveness. Of many treatments in the paper, few were very effective and all had their limitations. The best was soil fumigation with Vapam in which complete kill was achieved with an August application. Amitrole-T (at very high concentration of 25%) applied in May caused a slow kill over a 17 month period, then regrowth occurred. Also Amitrol is not labeled for this purpose. And glyphosate was ineffective unless 25% concentrate was sprayed on cut stumps - and even then for short periods only. Bamboos are wonderful - but consider them carefully and use them wisely. I've got a half-acre of 8 species I'll gladly give to any takers!

Another plant society promoting the plant of its passion is the American Boxwood Society which has just released a "Boxwood Buyer's Guide" with sources for a great many common to rare varieties of *Buxus*. Write to American Boxwood Society, Box 85, Boyce, VA 22620 - the price is \$3.00.

Another specialist nursery has opened in the Triangle Area and it is a pleasure to welcome and offer best wishes to Kim and Bruce Hawks of Niche Gardens, Route 1, Box 290, Chapel Hill, NC 27514 (919-967-0078). They are specializing in nursery propagated southeastern native plants of high quality. They are offering quart to gallon containers suitable for more rapid impact in the landscape. They also have a limited selection of uncommon shrubs and trees. They are open to visitors only by appointment at this time. Please send \$1.00 for the price list which is refunded with an order.

For anyone visiting the D. C. area and interested in the native insectivorous plants - it might be worth a look to check out Hummer's Insectivorous Gardens, 1705 N. Quebec Street, Arlington, VA. I've not been there but have been told he has quite an extensive collection on display and available.

After my talk in Oregon at the FarWest Show in August - I was contacted by Andrea Kincaid and Brent Thams asking that I publicize their operation which specializes in Sierra Native plants and a wide range of ornamentals. A price list may be obtained from Alpine Plants, P.O. Box 245, Tahoe Vista, CA 95732 (916-546-5518). They are in their 12th year of business and sell 1 to 5 gallon pots wholesale at the site, and of more interest to readers of this newsletter - they have tube grown liners of a wide array of perennials, shrubs, and trees available for \$.80 @. Most of the materials on their list could be grown in North Carolina and there are many fine things for the mountains rarely seen in the trade here.

My next listing could be placed equally well either in this Sources section or in the Books section - and in effect could (thankfully) about put me out of business in trying to recommend places to look for plants. It is a new book: Gardening by Mail by Barbara J. Barton (1968, ISBN: 0-937633-01-1, Tusker Press, P.O. Box 597004, San Francisco, CA 94159 (415-931-7877), \$16.00, or \$18 with postage and handling). It is an amazing compilation of 1,200 nurseries indexed by plant specialty and location; 300 garden supply and service companies indexed by product or service; 200 plant and horticultural societies, 100 useful gardening books, 100 horticultural libraries, and 40 horticultural and gardening magazines and newsletters. In a quick browse through it I already see a number of places I want to write to check out. Seems a good value buy for the price.

To go even further in specialized information searching to the point of a custom plant hunting operation for individuals - I want to publicize the new business started by Sandy Olson, North Star Seed and Plant Search, Box 1655A RFD 1, Burnham, ME 04922. She states "North Star functions as a data bank for commercially and privately available plant material. By use of the computer, I am able to connect those wishing to obtain plants or seeds with those offering them. As of June 1, North Star is set up with a computer file of about 100,000 plants and seeds, most with multiple suppliers. The range includes herbs, perennials, native plants, vegetables, annual flowers, bulbs, roses, grasses, ferns, ornamental trees and shrubs, fruits, nuts, and berries. There are 3 categories of service. The standard order is searching the computer files for your request and providing that information. The first request is \$5.00, each additional request on the same order is \$2.50. If your plant/seed is not located, your money will be refunded except for a handling charge. Special orders for over 20 plants at a time - \$4 for the first, \$2 for each other. For further effort, Custom services are available of personally hunting the plants, arranging foreign imports, etc." On the reverse side of this concept, it would seem to me useful for small or young specialists growing difficult-to-market items to contact Ms. Olson and arrange to have their price lists included in this computer data bank.

NEW PLANTS RECEIVED IN THE NCSU Arboretum (now the JC Raulston Arboretum) - JULY - DECEMBER 1986:

Magnolia 'Mark Jury' - Duncan & Davies Nurseries, New Zealand - (5' Bareroot) - 7/3

Metasequoia glyptostroboides 'Sheridan Spire' - Duncan & Davies, NZ - (5' Bareroot) - 7/3

Magnolia X soulangiana 'San Jose' - Duncan & Davies, NZ - (Bareroot) - 7/3

Wisteria sinensis 'Caroline' - Duncan & Davies, NZ - (Bareroot graft) - 7/3

Campsis guilfoylei - nDuncan & Davies, NZ - (Bareroot vine) - 7/3

Deutzia 'Pink Pompom' - Duncan & Davies, NZ - (Bareroot - 6") - 7/3

Juniperus X media 'Milky Way' - Duncan & Davies, NZ - (Bareroot - 6") - 7/3

Nandina domestica 'Richmond' - Duncan & Davies, NZ - (Rooted cuttings - 4") - 7/3

Rhodohypoxis baurii - A. E. DeHertogh - (flowering bubls in pot) - 7/14

Styrax jamponca 'Pink Chimes' (BG 834) - Brookside Gardens - one gallon - 8/1

Prunus laurocerasus 'Marbled White' (BG 1883) - Brookside Gardens - one to give gallons - 8/1

Ilex X ? - Brookside Gardens (from Gene Cline) - one gallon - 8/1

Quercus castaneifolia 'Green Spire' - Brookside Gardens (from Mallet Court, England) - quart - 8/1

Hydrangea integra (BG 1747) - Brookside Gardens (Taiwan, high altitude collection) - quart - 8/1

Podocarpus macrophyllus maki 'Okina-maki' (BG 266) - Brookside Gardens - gallon - 8/1

Podocarpus macrophyllus maki 'Maki' (BG 668) - Brookside Gardens - gallon - 8/1

Aleurites cordata - Brookside Gardens (Korea seed) - quart - 8/1

Cercis racemosa NA 49084 - Nat ional Arboretum - gallon - 8/5

Acer buergerianum NA 56633 - National Arboretum - 3" pots - 36 plants - 8/5

Campsis grandiflora NA 56519 - National ARboretum - quart - 8/5

Berchemia racemosa var. magna NA 56521 - National Aroboretum - quart - 8/5

Ilex cornuta NA 56640 - National Arboretum - quart (3) - 8/5

Daphniphyllum macropodium NA 56572 - National Arboretum - Seedlings (75) - 8/5

Caryopteris incana NA 56572 - National Arboretum - quart - 8/5

Caryopteris incana NA 56588 - National Arboretum - quart - 8/5

Rhododendron (Azalea) 'Shirley Jean North' (groundcover) - Molback's Nursery, WA - gallon - 8/21

Hebe olochrea 'James Stirling' - Porterhouse Nursery, Boring, OR - 3" pot - 8/25

Hydrangea sp. (Guiz 146 - Simmons & Fleigler coll.) - UBC Botanic Garden, Vancouver, BC - 4" pot - 8/29

Weigela sp. (Guiz 122 - Simmons & Fleigler coll.) - UBC Botanic Garden, Vancouver, BC - 4" pot - 8/29

Hydrangea integrifolia (Mt. Ali - Pierre Piroche coll.) - UBC Bot. Garden, Vancouver, BC - 4" pot - 8/29

Rhododendron leishanicum (Guangxi prov. #125 - Simmons & Fleigler) UBC Bot. Garden - 4" pot - 8/29

Clematis meyeniana (Shanghai Bot. Garden) - UBC Botanic Garden, Vancouver, BC - 4" pot - 8/29

Acer caesium (C&R #251) - UBC Botanic Garden, Vancouver, BC - 4" pot - 8/29

Stewartia rostrata (Source 349) - UBC Botanic Garden, Vancouver, BC - 4" pot - 8/29

Crocus goulimyi - John D. Lyon, Inc. - bulbs - 9/3

Crocus karduchorum - John D. Lyon, Inc. - bulbs - 9/3

Crocus speciosus - John D. Lyon, Inc. - bulbs - 9/3

Crocus speciosus 'Cassiope' - John D. Lyon, Inc. - bulbs - 9/3

Lagerstroemia indica 'World's Fair' - Lone Star Nursery, TX - rooted cuttings - 9/5

Lagerstroemia indica 'Pixie White' - Lone Star Nursery, TX - rooted cuttings - 9/5

Lagerstroemia indica 'Creole' - Lone Star Nursery, TX - rooted cuttings - 9/5

Lagerstroemia indica 'Pixie Pine #2950' - Lone Star Nursery, TX - rooted cuttings - 9/5

Lagerstroemia indica 'Pink Blush' - Lone Star Nursery, TX - rooted cuttings - 9/5

Juniperus conferta 'Hilary' - Summer Hill Nursery, Inc., Madison, Conn. - rooted cuttings - 9/10

Petteria ramentacla - Arnold Arboretum (86-212), MA - rooted cuttings - 9/12

Physocarpus capitatus 'Tilden Park' - Arnold Arboretum, MA - rooted cuttings - 9/12

Lespedeza floribunch - Arnold Arboretum (1021-?5), MA - rooted cuttings - 9/12

Sinarundinaria murielae - Arnold Arboretum, MA - division - 9/12

Ceanothus X pallidus 'Roseus' - Arnold Arboretum, MA - unrooted cuttings - 9/12

Crocus biflorus 'Alexandri' - John D. Lyon, Inc., MA - bulbs - 9/18

Crocus candidus subflavus - John D. Lyon, Inc., MA - bulbs - 9/18

Crocus chrysanthus 'Cream Beauty' - John D. Lyon, Inc., MA - bulbs - 9/18

Crocus corsicus - John D. Lyon, Inc., MA - bulbs - 9/18

Crocus sativus - John D. Lyon, Inc., MA - bulbs - 9/18

Narcissus gracilis - John D. Lyon, Inc., MA - bulbs - 9/18

Narcissus W. P. Milner - John D. Lyon, Inc., MA - bulbs - 9/18

Sternbergia clusiana - John D. Lyon, Inc., MA - bulbs - 9/18

Acer barbatum - John Gibson, U. of Ga. - Seedling 1' - 9/19

Acer davidii - John Gibson, N. of Ga. - Seedling 6" - 9/19

Cephalanthus occidentalis - John Gibson, U. of Ga. - Rooted cutting 3" pot - 9/19

Corylopsis gotoana - John Gibson, U. of Ga. - Rooted cutting 3" pot - 9/19

Hibiscus syriacus 'Blue Bird' - John Gibson, U. of Ga. - Rooted cutting 1', qt. pot - 9/19

Ilex X 'William Cowgill' - John Gibson, U. of Ga. - Rooted cutting 3" pot - 9/19

Quercus hemisphaerica - John Gibson, U. of Ga. - Seedlings - 9/19

Genista germanica 'Nana' - Western Hills Nursery, CA - 3" pot - 9/23

Cytisus scoparius 'Glory of Sunningdale' - Western Hills Nursery, CA - 4" pot - 9/23

Cytisus 'Garnet' - Western Hills Nursery, CA - rooted cutting - 9/23

Dahlia imperialis 'Alba' - Western Hills Nursery, CA - rooted cutting - 9/23

Ceratostigma abyssinica - Western Hills Nursery, CA - rooted cutting - 9/23

Berberis X stenophylla 'Harlequin' - Western Hills Nursery, CA - Rooted cutting - 9/23

Iris unquicularis 'Alba' - Western Hills Nursery, CA - division - 9/23

Buddlea alternifolia - Western Hills Nursery, CA - rooted cutting - 9/23

Buddlea alternifolia 'Argentea' - Western Hills Nursery, CA - rooted cutting - 9/23

Abelia triflora - Western Hills Nursery, CA - 3" pot - 9/23

Arctostaphylos uva-ursi 'Wood's Red' - Western Hills Nursery, CA - 3" pot - 9/23

Choisya arizonica - Western Hills Nursery, CA - 3" pot - 9/23

Achillea wilczekii - Western Hills Nursery, CA - rooted cutting - 9/23

Achillea rupestris - Western Hills Nursery, CA - 4" pot - 9/23

Achillea X jaborneggii - Western Hills Nursery, CA - 4" pot - 9/23

Achillea huteri(?) - Western Hills Nursery, CA - 4" pot - 9/23

Achillea borealis 'Island Pink' - Western Hills Nursery, CA - 3" pot - 9/23

Iris cristata 'Vein Mountain' - We-Du Nursery, NC - division - 9/30

Iris kashmireana - We-Du Nursery, NC - division - 9/30

Iris rossii - We-Du Nursery, NC - division - 9/30

Iris prismatica 'Polly Spout' - We-Du Nursery, NC - 9-30

Abies cephalonica - Buchholz & Buchholz Nursery, Or - 1 yr. graft - 10/10

Abies pindrow - Buchholz & Buchholz Nursery, OR - 1 yr. graft - 10/10

Bies veitchii - Buchholz & Buchholz Nursery, OR - 1 yr. graft - 10/10

Acer palmatum 'Beni Kawa' - Buchholz & Buchholz Nursery, Or - 1 yr. graft - 10/10

Acer plamatum 'Karasugawa' - Buchholz & Buchholz Nursery, OR - 1 yrs. graft - 10/10

Chamaecyparis nootkatensis 'glauca' - Buchholz & Buchholz Nursry, OR - 1 yr. graft - 10/10

Picea neyeri - Buchholz & Buchholz Nursery, OR - 1 yr. graft - 10/10

Picea smithiana - Buchholz & Buchholz Nursery, OR - 1 yrs. graft - 10/10

Pseudotsuga memziesii 'glauca pendula' - Buchholz & Buchholz Nursery, OR - 1 yr. graft - 10/10

Quercus robur 'Concordia' - Buchholz & Buchholz Nursery, OR - 1 yr. graft - 10/10

Quercus robur 'Filicifolia' - Buchholz & Buchholz Nursery, OR - 1 yr. graft - 10/10

Thuja koreana 'glauca prostrata' - Buchholz & Buchholz Nursery, OR - 1 yr. graft - 10/10

Narcissus 'Royal Orange' - New York Botanic Garden Plant Shop, NY - Bulbs - 10/14

Narcissus 'General Patton' - New York Botanic Garden Plant Shop, NY - Bulbs - 10/14

Narcissus 'Victor Borge' - New York Botanic Garden Plant Shop, NY - Bulbs -10/14

Agave utahensis var. kaibabensis - Arnold Arboretum, MA - 3" pot - 10/19

Buddlea alternifolia 'argentea' - Arnold Arboretum, MA - 3" pot - 10/19

Castanea pumila - Arnold Arboretum, MA - 3" pot - 10/19

Elliotia racemosa - Arnold Arboretum, MA - 3" pot - 10/19

Magnolia biondii - Arnold Arboretum, MA - 1 gal. - 10/19

Magnolia zenii - Arnold Arboretum, MA - 1 gal. - 10/19

Malus yunnanensis - Arnold Arboretum, MA - 3" pot - 10/19

Ophiopogon planiscapens ' nigrescens' - Arnold Arboretum, MA - 3" pot - 10/19

Salix erythroflexulosa - Arnold Arboretum, MA - 1 gal. - 10/19

Sinojackla xylocarpa - Arnold Arboretum, MA - 1 gal. - 10/19

Viburnum plicatum f. tomentosum 'Newport' - Arnold Arboretum, MA - 3" pot - 10/19

Rhododendron 'Hot Line' - Longwood Gardens, PA - 1 gal. - 10/20

Rhododendron 'Jeff Hill' - Longwood Gardens, PA - 1 gal. - 10/20

Rhododendron 'Late Love' - Longwood Gardens, PA - 1 gal. - 10/20

Rhododendron 'Susannah Hill' - Longwood Gardens, PA - 1 gal. - 10/21

Rhododendron 'Wintergreen' - Longwood Gardens, PA - 1 gal. - 10/21

Sorbus alnifolia (84-200) - Morris Arboretum, PA - 1 qt. - 11/18

Weigela praecox (84-205) - Morris Arboretum, PA - 1 qt. - 11/18

Acer truncatum (84-191) - Morris Arboretum, PA - 1 qt. - 11/18

Cornus kousa (84-176) - Morris Arboretum, PA - 1 gal. - 11/18

Diospyros lotus (84-178) - Morris Arboretum, PA - 1 qt. - 11/18

Sapium japonicum (84-233) - Morris Arboretum, PA - 1 qt. - 11/18

Albizia coreana (84-291) - Morris Arboretum, PA - 1 gal. - 11/18

Celtis choseniana (84-222) - Morris Arboretum, PA - 1 qt. - 11/18

Diospyros kaki (84-226) - Morris Arboretum, PA - 1 qt. - 11/18

Celtis bungeana (84-242) - Morris Arboretum, PA - 1 qt. - 11/18

Weigela subsessilis (84-187) - Morris Arboretum, PA - 1 gal. - 11/18

Ilex serrata 'Bonfire' - Simpson Nursery Co., IN - BR 1 yr. liner - 12/15

Ilex verticillata 'Afterglow' - Simpson Nursery Co., IN - BR 1 yr. liner - 12/15

Ilex verticillata 'Aurantiaca' - Simpson Nursery Co., IN - BR 1 yr. liner - 12/15

Ilex verticillata 'Cacapon' - Simpson Nursery Co., IN - BR 1 yr. liner - 12/15

Ilex verticillata 'Shaver' - Simpson Nursery Co., IN - BR 1 yr. liner - 12/15

Ilex verticillata 'Sunset' - Simpson Nursery Co., IN - BR 1 yr. liner - 12/15