

## VIII. PRELIMINARY REPORT ON NATIVE OKLAHOMA PLANTS SUITABLE FOR ORNAMENTAL PLANTING.

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Landscape architecture is an art of design. Design is the art or act of determining the character and arrangement of objects so as to serve a predetermined purpose or purposes and landscape design is design in landscape materials. Landscape materials are all the various and varied land forms, vegetation and structures in their relation to the landscape.

The landscape architect has a tremendous variety of possible plants and it is to his advantage to know the best of these plants, to have a knowledge of the ultimate size and form of each plant, and an accurate knowledge of the ecological relation of the several species which he is using. Harmony of texture and color of foliage and a proper ecological grouping are of major importance in securing unity in a plan which uses native materials.

In landscape architecture there are two methods of development of land areas,—the formal style and the informal or natural style. As the term "formal style" implies, it is possible to use a greater number of exotic plants in this type of development than is possible in the natural style. The native plants lend themselves to a naturalistic development of land areas.

"The natural style of landscape architecture has always been deeply involved with questions of planting—with the choice and management of species." There is no doubt in many minds that the selection and management of the plant materials does play an important role in landscape architecture, especially in the natural style.

Ground forms, or topography, has been given as one of the landscape materials. The outstanding features of topography are beyond the reach of the builder of landscape so it becomes necessary to depend upon plant materials to produce the effect of a natural landscape. Since this is true, it is quite desirable to know the native plants and to have some rather definite idea as to their use. That is, they should be used as they are found in native growth and our grouping should be based on the same laws which govern their appearance under native conditions.

In the early attempts at reproduction of natural landscape in America there is evidence of a desire to reproduce the forms of the natural landscape without the native plant materials. Andrew Jackson Downing, an outstanding figure in American horticulture and landscape architecture, did a great deal to keep this sort of planting in the foreground and it was not until 1890 that there began to be a definite reaction against the use of exotic species and a development of a preference for native species.

Frederick Law Olmsted, Sr. contributed materially to this development. He was one of the first to use native species in mass planting. It has been said of him that he discovered the native flora, and his use of native material in great masses is an advance worthy of comment because 'nature presents her plantings in large masses,' and these plantings in nature are controlled by very definite conditions of soil and moisture.

Ecology has been more recently called upon to aid the landscape

designer. In nature we find very few species existing alone. They grow together in societies in so definite an association that if a certain species is named the student remembers other species found growing with it. If the landscape architect desires to reproduce nature's true aspect it is quite essential that the plants be kept in their proper ecological groupings. The ecological principle is one not to be overlooked in the development of the natural style yet it is surprisingly neglected by landscape designers in America and by most of the schools where professional courses in landscape architecture are offered. Among the schools where such courses are offered, the University of Cincinnati alone requires the study of ecology. In the Lowthrop school and at the University of Illinois it is much emphasized. The subject is treated at some length by Willy Lange in his book "Die Garten-Gestaltung der Neuzeit" and just touched upon by Frank A. Waugh in his books on Landscape Gardening.

In the state of Oklahoma there has been, apparently, very little attention given to the use of our native plants for ornamental planting (with the exception of a few trees) in either natural or formal landscape development and surely less attention to an ecological grouping of native plants which have been used. The nurserymen who have been interviewed to date have devoted practically all of their time to the selection and growing of introduced exotic species and the people have made their planting according to the suggestions of the nurseryman or the landscape gardener. In many cases the demand for exotic species has been furthered by planting lists found in magazines devoted wholly or partially to gardens, printed in a different section of the United States and those plants listed probably suited for use in one section only, although there are numbers of plants which can be grown over most of the nation.

The failure to appreciate the beauty of many of our native plants may be due to familiarity, or to the tendency toward standardization of plant materials along with our standardization of automobiles, breakfast food, soap, etc., due to our reading standard advertisements in standard magazines and books printed in a far section of the United States and quite possibly for that particular section. This failure may also be due to a desire to have plants with a different sounding name. This supposition is strengthened somewhat by an incident related some ago. An Oklahoma nurseryman was adding to his existing stock by importation from a neighboring state.

In the list of plants offered was one named 'Red Snowberry,' (a contradictory name). This sounded 'sellable' so a quantity was ordered. When the plants arrived they were placed near a fence which enclosed the nursery. The next autumn upon examining the plants, the owner discovered that his 'Red Snowberry' was the same kind of plant that grew in quantity just over the fence and religiously excluded from the nursery because it was a non-saleable article known as Buck Brush or Indian Currant—a perfectly good plant for ornamental planting. It is also interesting to note that this same nurseryman has within the last year discovered the merits of one of our native oaks, *Quercus Michauxii*, Cow or Basket Oak, and is beginning to grow them in quantity in his nursery.

In compiling this list of native plants; which is not yet complete; the trees head the list because they are most prominent in the landscape and are of major importance in our ecological groupings. The woody shrubs and vines follow in the order of their importance for use in natural planting. The herbaceous plants have not been included. It is believed that they are of enough importance to warrant thorough study and experimentation with regard to their use in dry rock gardens, in open, exposed gardens—surely in the preservation or creation of a prairie form of landscape, and 'wind-proof' enclosed gardens.

### *The Trees*

Pinaceae. Pine Tree Family.

*Pinus echinata*, Mill. Yellow Pine.

*Juniper virginiana*, L. Red Cedar.

*Taxodium distichum*, Rich. Common Bald Cypress.

Of the three trees of the pine family the Red Cedar is perhaps the best suited for general planting. It is found growing over a large part of the state. It will grow in any kind of soil and may be sheared in various forms, which makes it valuable for use in the formal style of landscape design. It groups easily with nearly all the deciduous trees.

Salicaceae. Willow Family.

*Salix nigra*, Marsh. Black Willow.

*Populus balsamifera*, L. Cottonwood.

The native trees of this family are found chiefly along stream margins. There is some tendency to plant them on upland, however they properly belong to low lands.

Juglandaceae.

*Juglans nigra*, L. Black Walnut.

*Carya Pecan*, Nutt. Pecan.

There is an increasing interest in the pecan tree because of its value as a nut bearer. Both trees of this family are interesting as specimen trees as well as for use in mass plantings.

Fagaceae, (Beech Family).

*Quercus palustris*, L. Pin Oak.

*Q. rubra*, L. Red Oak.

*Q. prinoides*, Willd. Scrub Chestnut Oak.

*Q. Michauxii*, Nutt. Basket Oak, Cow Oak.

*Q. macrocarpa*, Michx. Bur Oak.

*Q. Muhlenbergii*, Engelm. Chestnut Oak.

*Q. stellata*, Wang. Post Oak.

The oaks are numerous and of enough variety in size, color and texture of foilage to make them of value even if used alone in a landscape plan. *Q. palustris* and *Q. Michauxii* are the most valuable of the list, for shade, street or mass planting. *Q. palustris* is valued for its stately form and beautiful autumn foilage.

Ulmaceae. (Elm Family).

*Ulmus americana*, L. American Elm.

*Ulmus fulva*, Michx. Slippery or Red Elm.

*Ulmus alata*, Michx. Wahoo or Winged Elm.

The American elm has been in Oklahoma a favorite tree. It makes a comparatively rapid growth and, while it does not assume the perfect vase form in this state as do the elms of the east, it is valuable for all forms of

naturalistic development, street use, and for shade. It is subject to insect attacks. The foliage of the three named species harmonize with all trees of this list. *U. alata* is a smaller species occurring with the other two.

*Celtis occidentalis* L. Hackberry.

*C. mississippiensis*, Bose. Southern Hackberry.

These two members of the Elm family are sometimes confused with the elms. They occur in some sections in the same plant society and, although differing in form, can be used in the same place effectively.

Moraceae. (Mulberry Family).

*Maclura pomifera*, Forst. Osage Orange.

The Osage Orange or Bois d'Arc, is regarded by many as a shrub because of its wide use as a hedge plant. If allowed to grow it reaches a height of 50-60 ft.

Lauraceae. (Laurel Family).

*Sassafras varifolium*, Kuntze. Sassafras.

Very much neglected. Valuable as a small tree or large shrub. Equal to *Quercus palustris* in color of foliage in autumn. Occurs with Oak, Elm, and Red Bud.

Hamamelidaceae. (Witch hazel Family).

*Liquidambar styraciflua*.

Deserves wider use. Grows in widely different kinds of soil. Valuable for its interesting, star-shaped leaves.

Platanaceae. (Plane-tree Family).

*Platanus occidentalis*, L. Plane Tree.

Sometimes erroneously called Sycamore. Difficult to use except under same conditions under which it appears in nature. Not suited for use as a lawn or shade tree, nor for street planting because of coarse foliage. Withstands blight, apparently, in this state better than further east.

Rosaceae. (Rose Family).

*Crataegus Crusgalli* L. Cockspur Thorn.

*Crataegus* sp. Hawthorn.

Small trees usable either as specimen trees or for massing in landscape parks. Attractive in flower and in fruit. Should be planted also to attract birds.

Leguminosae. (Pea Family).

*Robinia Pseudo-Acacia*, L. False Acacia. Yellow Locust.

*Cercis candensis*, L. Red Bud. Judas Tree.

*Gymnocladus dioica*, Koch. Kentucky Coffee Bean.

*Gleditsia triacanthus*, L. Honey or Sweet Locust.

The native trees of the Pea Family used as street are the Yellow Locust and the Honey Locust. They are valuable for use in the garden because the foliage is thin enough to allow other plants to grow in their shade. The Red Bud occurs with nearly all species of trees and shrubs growing in Oklahoma yet it is used very sparingly in mass planting. The Coffee Bean belongs in valleys or in locations where there is a plentiful water supply.

Aceraceae. (Maple Family).

*Acer Negundo*, L. Box Elder.

*A. saccharinum*, L. White or Silver Maple.

*A. saccharum*, Marsh, Sugar or Rock Maple.

*A. circinatum* Pursh. ?

The maples are favorite trees for street planting in many sections. Growth is rapid. They are more easily broken in wind than most of our trees and should be used in natural mass plantings with other trees.

Sapindaceae, (Soapberry Family).

*Sapindus Drummondii*, H&A. Soapberry. China Tree.

Erroneously called China Berry. Appears in nature with Willow, Coffee Bean, Cottonwood and Elm. An attractive small tree

Cornaceae. (Dogwood Family).

*Cornus florida*.

Variouly classified as a small tree or large shrub. Attractive in flower and fruit.

*Nyssa sylvatica*, Marsh. Sour Gum.

Middle-sized tree with horizontal branches. Valuable for its bright crimson leaves in autumn.

Ebanaceae. (Ebony Family).

*Diospyros virginiana*, L. Common Persimmon.

Seldom planted. Appears over a wide range and can be grown in almost any kind of soil. Harmonizes well with all other native trees.

Olaceae. (Olive family).

*Fraxinus lanceolata*, Sarg. Green Ash.

*F. pennsylvanica*, March, Red Ash.

*F. americana*, L. White Ash.

The white ash is perhaps most suitable for general planting. All three species are comparatively easy to transplant and are valuable for park planting.

### *The Shrubs*

Salicaceae. (Willow Family).

*Salix interior*. Rowlee. Sandbar willow.

*Salix* sp.

The willows properly belong near stream margins. It is interesting to note that the smaller plants of this genus may be used for clipped hedges.

Lauraceae. (Laurel Family).

*Benzoin aestivale*, Nees. Spice Bush.

A deciduous-leaved shrub suitable for planting under trees or in shade of buildings. Found in moist woods but adapts itself well to shade on dry land.

Rosaceae, (Rose Family).

*Rosa setigera*, Michx. Prairie Rose.

*R. blanda*, Ait.

*R. virginiana*, Mill. Pasture Rose.

Three roses found growing in the open or along margins of woodlands and along roadsides. *R. setigera* and *R. blanda* ideal plants for holding soil on steep grades and for planting as a low shrub on the margin of wooded areas.

Leguminosae. (Pea Family).

*Amorpha canescens*, Pursh, Lead Plant.

*A. fruticosa*, L. False Indigo.

False Indigo is the taller of the two. Both are found growing in the open, however *A. fruticosa* is quite often found along stream banks. Like the roses named they are suitable for planting along the edge of wooded areas.

## Rutaceae (Rue Family).

***Ptelea trifoliata***, L. Hop Tree.

A tall shrub with bitter fruit which is used as a substitute for hops. The odor of the flower is disagreeable which may account for it not being used to any great extent. It is of value in dry, rocky locations.

## Anacardiaceae. (Cashew Family).

***Rhus glabra***, L. Smooth Sumac.***R. copallina***, L. Dwarf Sumac.***R. canadensis***, Marsh. Fragrant Sumac.

The sumacs are one of the easiest shrubs to transplant. They can be pulled from the roadside or edge of the woods in the spring or fall, transported for several miles without special care, placed in almost any kind of soil and make a good yearly growth. For a natural development they can not be equalled. The smooth Sumac is beautiful at all seasons. The fruit attracts the birds in the autumn and the colorful leaves are attractive. *R. canadensis* is the best shrub for planting on steep or sandy banks. The leaves have a pleasant, pungent odor when crushed.

## Aquifoliaceae. (Holly Family).

***Ilex decidua***, Walt. Deciduous Holly.

This shrub should be planted in woodlands. The drupes are red and persist until early spring. Used as a Christmas decorative plant.

## Hippocastanaceae. (Horse-Chestnut Family).

***Aesculus glabra*** var. *arguta*, Robinson. Shrubby Buckeye.

The Shrubby Buckeye has large yellowish flowers in April and spiny globose fruits. An attractive large shrub suitable for planting with large trees or shrubs.

## Rhamnaceae. (Buckthorn Family).

***Rhamnus lanceolata***, Pursh, Buckthorn.***Ceanothus americanus***, L. New Jersey Tea.

The Buckthorns are thornless, tall shrubs found on hills and along streams. The flowers are not conspicuous. The leaves are shining green and the plant is quite attractive. The flowers of New Jersey Tea are quite fragrant. Any of these plants are suitable for mass planting in dry woodlands or in the open.

## Cornaceae. (Dogwood Family).

***Cornus asperifolia***, Michx. Rough-leafed Dogwood.

A plant suitable for cultivation in dry or sandy soil. Tall, can be used for background planting.

## Rubiaceae. (Madder Family).

***Cephalanthus occidentalis***, L. Buttonbush.

A large shrub found in swamps and along streams. Attractive in fruit.

## Caprifoliaceae. (Honeysuckle Family).

***Symphoricarpos orbiculatus***, Moench. Indian-Currant.

A deciduous shrub 3 to 7 feet high, although in woodlands it seldom reaches a height of more than 3 feet. The red berries in dense axillary clusters make it one of the most attractive of native shrubs. Found as undergrowth and in the open.

***Viburnum prunifolium***, L. Black Haw.***Sambucus canadensis***, L. Common Elder.

Both these plants are attractive in flower and in fruit. Each will grow in dry or moist ground. The Haw and Elder should be included in the bird garden.

*The Vines*

Liliaceae. (Lily Family).

**Smilax glauca**, Walt. Saw Brier.**S. Bona-nox**, L. Bristly Green-brier.**S. sp.** (2)

An interesting and usable group. Objectionable to many because of the many stout prickles. Found in thickets with all species of trees and shrubs.

Celastraceae. (Staff-Tree Family)

**Celastrus scandens**, L. False Bitter-sweet.

A twining shrub to 25 feet. The capsules are about one-third inch in diameter, orange-yellow, when opening disclosing the crimson covering of the seed. For planting in tree or shrub groups or in the open.

Vitaceae. (Vine or Grape Family).

**Vitis aestivalis**, Michx. Summer Grape.**V. rotundifolia**, Michx. Muscadine.

The wild grapes are of especial value where it is necessary to reproduce a bit of natural landscape. Both species listed have large leaves and make a rapid growth in wooded areas.

**Ampelopsis arborea**, Koehne. Pepper-Vine.**Cissus incisa**, Des Moulins.**Parthenocissus quinquefolia**, var. **St. Paulii** Planch. Virginia Creeper.

Three of our most valuable vines for covering walls the Virginia Creeper is most satisfactory. Fruits of all are attractive.

Bignoniaceae (Bignonia Family).

**Campsis radicans**, Seem. Trumpet Vine.

Climbing to 30 feet. A coarser vine than those named above, it will grow in any soil, and can be used in exposed or shaded locations.