

angustissima, \* mexicana, nigra var. Lindheimeri, \* oxylepis, \* paradoxa and var. \* ajuscanana, \* Rowleei and var. \* cana, \* Schaffneri, taxifolia and var. \* microphylla.

SOUTH AMERICA: *S. Humboldtiana* and var. \* *Martiana*.

DAHLEM-BERLIN, March, 1921.

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## A LIST OF THE TREES OF LOUISIANA

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THIS catalogue is based upon collections made by the writer during the past fifteen or sixteen years. During that period every portion of the State has been investigated and, with the exception of *Crataegus*, it is believed the list is very nearly a complete one. Specimens of all the trees listed are in the Tulane Herbarium and in that of the Arnold Arboretum. Professor Sargent who has accompanied me on many expeditions in different parts of the State has revised the identifications, and I am deeply indebted to him for his interest and constant assistance. For most trees the time of flowering and of the mature fruit has been given. In the case of flowers this is subject to considerable variation, perhaps as much as three weeks earlier and later in different years. This year, 1921, many trees were flowering in January which normally bloom in February or even in March.

In West Feliciana Parish several trees probably attain their maximum heights as shown by the following measurements carefully made by Mr. Edward Butler of Catalpa in that Parish.

*Liriodendron Tulipifera*, height 181 feet; girth 16½ feet.

*Quercus alba*, height 182 feet; girth 14½ feet.

*Carya cordiformis*, height 171 feet; girth 12½ feet.

*Fagus grandifolia* var. *caroliniana*, height 125½ feet; girth 12 feet, 10 inches.

*Ilex opaca*, height 100 feet; girth 5 feet, 8 inches.

*Acer saccharum* var. *glaucum*, height 92 feet, 8 inches; girth 6 feet.

*Magnolia acuminata* var. *ludoviciana*, height 91 feet; girth 7 feet, 8 inches.

*Magnolia grandiflora*, height 147 feet; girth 12 feet.

## PINACEAE

*Pinus palustris* Mill. Pine flats: St. Tammany, Tangipahoa, Beauregard, Calcasieu and Allen Parishes. Pine hills: Washington, Tangipahoa, St. Helena, Beauregard, Winn, Grant, LaSalle and Natchitoches Parishes.

*Pinus echinata* Mill. Mostly on uplands north of the *Pinus palustris* region, between Ouachita River and the Texas border, and along the Arkansas border.

*Pinus caribaea* Morelet. Confined to eastern Louisiana. In Washington Parish sometimes forming pure forests. Also in St. Tammany, Tangipahoa and St. Helena Parishes. Usually in poor, undrained soil.

*Pinus taeda* L. As second growth all over eastern Louisiana except in alluvial or swamp lands. West of the Mississippi River mostly in level woods bordering on grassy marshes. Very common near the Arkansas line. Trees occur in practically every parish in the State except in those which are entirely alluvial.

*Pinus glabra* Walt. All over eastern Louisiana except in Cypress-swamps, usually mingled with other evergreen and with deciduous-leaved trees. Most abundant in Washington Parish.

*Taxodium distichum* Rich. Swamps all over the State.

*Taxodium distichum* var. *imbricarium* Sarg. Not uncommon in vicinity of Pearl River.

*Chamaecyparis thyoides* B. S. P. According to Dr. Charles Mohr (Plant Life of Alabama, p. 325) this tree occurs in East Louisiana. I have never found it.

*Juniperus virginiana* L. In dry hilly regions. East and West Feliciana, and East Baton Rouge Parishes. Occasional all over the State; has been very extensively planted for ornament and possibly many of the trees are escapes.

*Juniperus lucayana* Britt. Occasional over the State. This tree has also been extensively planted and in many places where it occurs is probably naturalized.

### LILIACEAE

*Yucca aloifolia* L. Sandy soil in eastern Louisiana, sometimes nearly 30 feet high, usually about 10 feet.

### SALICACEAE

*Populus heterophylla* L. Swamps over the State. Flowers March 20. Fruit May 1.

*Populus balsamifera* var. *virginiana* Sarg. Alluvial soil over the State. Flowers March 1-15. Fruit April 15.

*Salix nigra* Marsh. Wet places over the State. Flowers January 25. Fruit April 15.

*Salix nigra* var. *altissima* Sarg. Wet places. Richland, West Feliciana.

*Salix longifolia* Muehl. Borders of rivers over State. Flowers February 15. Fruit April 2.

*Salix longipes* var. *venulosa* Schneid. Near New Orleans, Drummond, (1832); not seen again.

### MYRICACEAE

*Myrica cerifera* L. All over the State. Occasionally near water courses a tree 40 feet high. More often a shrub. Flowers April 15. Fruit August.



## JUGLANDACEAE

*Juglans nigra* L. Rich alluvial soil over the State. Flowers March 15 to April 15. Fruit October.

*Carya pecan* Aschers. & Graebn. Rich woods East and West Feliciana Parishes; in Calcasieu Parish and probably elsewhere.

*Carya texana* Schneid. This rare tree occurs near Lake Charles, near Shreveport and in West Feliciana Parish. Rich alluvial soil. Flowers April 1. Fruit October.

*Carya cordiformis* K. Koch. Never very common. I have found it in the vicinity of Lake Charles near the Texas border, in West Feliciana Parish, and near Alexandria, Rapides Parish. Flowers March 28. Fruit October.

*Carya aquatica* Nutt. Swamps and along water courses over the State. Flowers April 3. Fruit October.

*Carya myristicaeformis* Nutt. A very rare tree, local in range. I have seen it only near Natchitoches, Natchitoches Parish, and in Richland Parish. Flowers April 5. Fruit October.

*Carya ovata* K. Koch. Not a common tree in Louisiana. I have not seen trees of it in East Louisiana. West of the Mississippi River, abundant near Opelousas, St. Landry Parish, and in Richland and Franklin Parishes. Rich, wet woods. Flowers April 1. Fruit October.

*Carya laciniosa* Schneid. Known only in West Feliciana Parish, where it was first reported eighty years ago by W. B. Carpenter. Flowers April 10. Fruit October.

*Carya alba* K. Koch. In dry woods over the State. Flowers April 3. Fruit October.

*Carya leiodermis* Sarg. Widely distributed over the State in wet, flat woods. Specimens have been collected in St. Tammany, Tangipahoa, Natchitoches, Richland, St. Landry and Winn Parishes. Flowers April 1. Fruit October.

*Carya leiodermis* var. *callicoma* Sarg. Wet woods. Calcasieu and St. Tammany Parishes. Flowers April 3. Fruit October.

*Carya pallida* Ashe. Only known in the state near Kentwood, Tangipahoa Parish where it is abundant. Flowers April 20. Fruit October.

*Carya glabra* var. *megacarpa* Sarg. A common tree in upland woods, in East and West Feliciana Parishes; occasionally 140 feet high. Flowers March 28. Fruit October. Has not been found west of the Mississippi River.

*Carya Buckleyi* var. *arkansana* Sarg. Dry woods. Bossier, Winn, and St. Landry Parishes. Not seen east of the Mississippi River.

## BETULACEAE

*Carpinus caroliniana* Walt. Rich woods over the State. Flowers March 28. Fruit May 1-15.

*Ostrya virginiana* K. Koch. Rich woods over the State. Flowers

March 28. Fruit May.

*Betula nigra* L. Sandy banks of rivers over the State. Flowers April 1-15.

### FAGACEAE

*Fagus grandifolia* var. *caroliniana* Fern. & Rehd. Usually on rolling hills over the State. Flowers March 15. Fruit August.

*Fagus grandifolia* var. *caroliniana* f. *mollis* Fern. & Rehd. West Feliciana Parish. Flowers March 15. Fruit August.

*Castanea pumila* Mill. Borders of swamps and on rolling hills over the State. Flowers March 15. Fruit August.

*Castanea alnifolia* var. *floridana* Sarg. Near Covington, St. Tammany Parish. Flowers March 6. Fruit August.

*Quercus Shumardii* Buckl. Rich alluvial woods over the State. Flowers March 1. Fruit October.

*Quercus Shumardii* var. *Schneckii* Sarg. With the type.

*Quercus velutina* Lam. Nowhere very common but widely distributed over the State.

*Quercus Catesbaei* Michx. Dry sandy soil. St. Tammany and Tangipahoa Parishes.

*Quercus rubra* L. Dry woods and sandy soil over the State. Flowers February 25. Fruit October.

*Quercus rubra* var. *triloba* Ashe. Occasional with the type.

*Quercus rubra* var. *pagodaefolia* Ashe. Rich moist woods and borders of streams. Over the State.

*Quercus rubra* var. *leucophylla* Ashe. Low wet woods. Very common near Mandeville, St. Tammany Parish.

*Quercus marilandica* Muenchh. Dry sandy soil over the State. Flowers April 3. Fruit October.

*Quercus nigra* L. All over the State in both wet and dry soil. Flowers February 15. Fruit October.

*Quercus nigra* f. *tridentifera* Sarg. Occasional with the type.

*Quercus rhombica* Sarg. Rich woods and borders of swamps over the State. Flowers February 25. Fruit October.

*Quercus Phellos* L. Rich woods and borders of streams over the State. Flowers April 3. Fruit October.

*Quercus laurifolia* Michx. Known in the State only near Bogalusa, Washington Parish, where it is abundant. Flowers April 5. Fruit October.

*Quercus cinerea* Michx. Dry sandy soil over the State. Flowers April 5. Fruit October.

*Quercus Durandii* Buckl. In rich woods in the neighborhood of Natchitoches, Natchitoches Parish. Not seen elsewhere.

*Quercus macrocarpa* Michx. Caldwell Parish. Inserted on authority of Professor George Williamson of the State Normal College, Natchitoches.



*Quercus lyrata* Walt. In low wet woods over the State. Flowers April 2. Fruit October.

*Quercus stellata* Wang. In both wet and dry soil over the State, except in Cypress-swamps. Flowers April 3. Fruit October.

*Quercus stellata* var. *Margaretta* Sarg. Natchitoches and Rapides Parishes.

*Quercus stellata* var. *Margaretta* f. *stolonifera* Sarg. Seen only in one locality near Bogalusa, Washington Parish.

*Quercus stellata* var. *araneosa* Sarg. Natchitoches Parish.

*Quercus stellata* var. *paludosa* Sarg. Rich soil subject to overflow near Washington, St. Landry Parish.

*Quercus alba* L. Over the State except in swamps. Flowers April 1-15. Fruit October.

*Quercus alba* var. *latiloba* Sarg. Not uncommon with the type.

*Quercus alba* var. *repanda* Mich. Known only from one station near Pontchatoula, Tangipahoa Parish.

*Quercus Prinus* Michx. Swamps and rich flat woods over the State.

*Quercus Muehlenbergii* Engelm. A somewhat rare tree in Louisiana. In East Louisiana seen only once in West Feliciana Parish. More common in West Louisiana, in Richland, Natchitoches and Franklin Parishes.

× *Quercus ludoviciana* Sarg. (*Q. rubra* var. *pagodaefolia* × *Q. Phellos*). Inundated woods. St. Landry Parish.

× *Quercus Cocksii* Sarg. (*Q. rhombica* × *Q. velutina*). Rapides Parish.

× *Quercus Comptonae* Sarg. (*Q. lyrata* × *Q. virginiana*). Planted for ornament in Louisiana and Mississippi. Trees in New Orleans are said to have been brought from woods in the vicinity of Madisonville, St. Tammany Parish. I have not seen this tree growing wild.

## ULMACEAE

*Ulmus americana* L. Rich woods over the State. Flowers January 5-15. Fruit March 1.

*Ulmus alata* Mich. Borders of swamps and rich woods over the State. Flowers January 5-15. Fruit March 1.

*Ulmus fulva* Mich. A rather rare tree along streams and in rich soil over the State. Flowers February 15. Fruit March 8.

*Ulmus crassifolia* Nutt. A common tree in the northern part of the State; not found east of the Mississippi River. Flowers March 15.

*Planera aquatica* Gemel. Along water courses over the State. Flowers April 1. Fruit May 1.

*Celtis laevigata* Willd. Rich soil over the State. Flowers March 5. Fruit August.

## MORACEAE

*Morus rubra* L. Rich soil over the State. Flowers April 1. Fruit June.

*Maclura pomifera* Schneid. Widely distributed over the State. Prob-

ably an escape from cultivation, except possibly in the extreme north-western part of the State.

### MAGNOLIACEAE

*Magnolia grandiflora* L. Rich soil over the State. Flowers April 10–June 1. Fruit August.

*Magnolia virginiana* var. *australis* Sarg. Swampy places over the State. Flowers April 5.

*Magnolia acuminata* var. *ludoviciana* Sarg. Known only in West Feliciana Parish where it is not uncommon. Flowers April 2.

*Magnolia Fraseri* Walt. Known only in West Feliciana Parish where it is rare. Flowers April 1.

*Magnolia macrophylla* Michx. St. Tammany Parish, East Louisiana; rare; abundant in Winn Parish, northwest Louisiana. Flowers April 15.

*Liriodendron Tulipifera* L. Rich soil over the State. Flowers April 10. Fruit October.

### ANONACEAE

*Asimina triloba* Dunal. Rich soil over the State. Most common and attaining its largest size in West Feliciana Parish. Flowers April 4. Fruit August.

### LAURACEAE

*Persea Borbonia* Spreng. Borders of streams and swamps over the State. Flowers April 5. Fruit September.

*Persea palustris* Sarg. Very abundant in Pine-barren swamps in East Louisiana. Not seen west of the Mississippi River. Flowers April 15.

*Sassafras officinale* Nees & Ebermaier. In dry sandy soil as a shrub over the State; in rich alluvial soil becoming a large tree 70 feet high; attaining its largest size in Richland and Franklin Parishes. Flowers March 30.

### HAMAMELIDACEAE

*Liquidambar styraciflua* L. In rich soil and borders of swamps over the State. Flowers March 15. Fruit June.

*Hamamelis macrophylla* Pursh. On rolling hills and borders of streams over the State. Usually a shrub, sometimes a tree up to 40 feet in height. Flowers December 15 to January 10.

### PLATANACEAE

*Platanus occidentalis* L. Common over the State. Flowers April 5. Fruit June.



## ROSACEAE

*Malus angustifolia* Michx. Very abundant in East Louisiana where it occasionally forms extensive thickets in open pine barrens; in West Louisiana only near Winnfield, Winn Parish. Flowers March 1-15. Fruit September.

*Malus ioensis* var. *Palmeri* Rehd. In wet open woods, Natchitoches and St. Landry Parishes. Flowers April 15. Fruit September.

*Malus ioensis* var. *creniserrata* Rehd. Rich woods near Alexandria, Rapides Parish, and near Crowley, Acadia Parish. Flowers April 3-15. Fruit September.

*Amelanchier canadensis* L. A rather rare tree but widely distributed over the State. Flowers March 2. Fruit May 5.

*Crataegus Bushii* Sarg. Calcasieu Parish near Lake Charles. Large spreading tree. Flowers April 5. Fruit October 15.

*Crataegus Cocksii* Sarg. Winn Parish near Winnfield quarries, Natchitoches, Natchitoches Parish. Flowers April 15. Fruit October.

*Crataegus edita* Sarg. Low wet woods. Near Opelousas, St. Landry Parish, and in Natchitoches Parish. Flowers April 10. Fruit October 5.

*Crataegus tersa* Beadle. Upland woods near Opelousas, St. Landry Parish and in vicinity of Natchitoches, Natchitoches Parish. Flowers April 10. Fruit October 5.

*Crataegus crocina* Beadle. Natchitoches, Natchitoches Parish. Flowers April 1-15. Fruit October 1

*Crataegus algens* Beadle. Minden, Webster Parish. Flowers April 15.

*Crataegus berberifolia* T. & G. Wet flat woods near Opelousas, St. Landry Parish, Crowley Acadia Parish. Flowers April 10. Fruit October 5.

*Crataegus fera* Beadle. Low wet woods near Opelousas, St. Landry Parish; also near Natchitoches, Natchitoches Parish. Flowers April 12. Fruit October 5.

*Crataegus edura* Beadle. Crowley, Acadia Parish, and Natchitoches, Natchitoches Parish.

*Crataegus pyracanthoides* Beadle. Low woods, West Lake Charles, Calcasieu Parish. Flowers March 23.

*Crataegus opaca* Hook. Borders of streams and ponds in Pine-barrens over the State. In St. Tammany Parish sometimes covering many acres with exclusive growth or mixed with *Malus angustifolia* Michx. Flowers February 15. Fruit May.

*Crataegus viridis* L. This is the largest, the commonest and the most widely distributed species of *Crataegus* in Louisiana; sometimes the only growth for miles along rivers. Occurs in low grounds in all parts of the State. Flowers March 1. Fruit October.

*Crataegus velutina* Sarg. Natchitoches, Natchitoches Parish. Flowers April 15. Fruit October 8.

*Crataegus drymophila* Sarg. Rare. A few trees near Mandeville, St. Tammany Parish, in dry pine woods. Flowers March 15. Fruit August.

*Crataegus florens* Beadle. Abundant in West Feliciana Parish along the roads and on dry rolling hills. Usually shrubby. Flowers March 31. Fruit August.

*Crataegus apiifolia* Michx. Widely distributed over the State, in wet and dry soil, equally common in East and West Louisiana. Flowers March 15. Fruit October.

*Crataegus spathulata* Michx. Widely distributed over the State. The last *Crataegus* to bloom in the spring. Occurs in a variety of soils and situations. Flowers April 25. Fruit October.

*Crataegus brachyacantha* Sarg. & Engelm. Very common in wet Pine-barrens near Covington, St. Tammany Parish; also near Opelousas, St. Landry Parish and in Natchitoches Parish. Usually near water courses. Flowers April 10. Fruit August.

*Prunus umbellata* Ell. Sandy soil in Pine-barrens. St. Tammany, Tangipahoa and throughout the northern parishes. Flowers March 1. Fruit October.

*Prunus umbellata* var. *tarda* Wight. Dry woods in vicinity of Natchitoches, Natchitoches Parish. Flowers March 15. Fruit October.

*Prunus americana* Marsh. Swampy woods in vicinity of New Orleans. Flowers February 25. Fruit October.

*Prunus lanata* Mack. & Bush. Widely distributed in East and West Louisiana; East and West Feliciana, East Baton Rouge, St. Tammany, Rapides and Natchitoches Parishes.

*Prunus mexicana* S. Wats. East and West Louisiana. West Feliciana, East Baton Rouge, Rapides, Natchitoches, Richland, and Calcasieu Parishes. Flowers February 25. Fruit September to November.

*Prunus Munsoniana* Wight & Hedr. Common in the vicinity of Natchitoches, Natchitoches Parish. Flowers March 15. Fruit September.

*Prunus angustifolia* Marsh. Widely distributed over the State. Perhaps always naturalized. Flowers February 25. Fruit May and June.

*Prunus serotina* Ehrh. Over the state, nowhere very abundant. Flowers March 15. Fruit August.

*Prunus caroliniana* Ait. All over the State, but as it has been much planted for ornament it has probably often become naturalized. Undoubtedly native in East and West Feliciana Parishes. Flowers February 15. Fruit August.

## LEGUMINOSAE

*Cercis canadensis* L. Along streams and in rich woods over the State. Flowers March 5. Fruit May.

*Gleditsia triacanthos* L. Borders of swamps over the State. Flowers March 15. Fruit June.

*Gleditsia aquatica* Marsh. With the preceding species but not as common. Sometimes forming large thickets in deep water. Flowers March 15. Fruit June.



*Sophora affinis* T. & G. On high bluffs along the Red River in vicinity of Shreveport, Caddo Parish. Flowers April 15. Fruit June.

*Robinia Pseudoacacia* L. Now naturalized in all parts of the State. Flowers March 1. Fruit May.

#### ANACARDIACEAE

*Rhus copallina* L. Over the whole State; of its largest size in West Feliciana Parish where the trunks are used for fence posts. Flowers April 15. Fruit August.

*Rhus glabra* L. Over the whole State usually near water courses, often in dry fields; usually a shrub, occasionally a tree 20–30 feet high. Flowers April 10. Fruit August.

*Rhus vernix* L. Along streams and in wet woods. Not common but widely distributed. Flowers April 15. Fruit August.

#### CYRILLACEAE

*Cyrilla racemiflora* L. Wet places and along streams in Pine-woods over the State. Flowers June 1. Fruit July.

*Cliftonia monophylla* Britt. Along streams in pine woods. Seen only in St. Tammany Parish and near Bogalusa, Washington Parish. Flowers April 15.

#### AQUIFOLIACEAE

*Ilex opaca* Ait. Over the whole State. Of its largest size in West Feliciana Parish. Flowers April 15.

*Ilex Cassine* L. In deep swamps in the vicinity of New Orleans and Avery Island, Iberia Parish. Flowers April 15.

*Ilex vomitoria* Ait. Over the entire State. In pine barrens sometimes forming extensive thickets. Flowers April 15.

*Ilex decidua* Walt. Borders of streams and swamps over the State. Flowers April 5.

*Ilex lucida* T. & G. Usually a shrub. Near Bogalusa, Washington Parish 20–30 feet high and arborescent. Flowers April 15.

#### ACERACEAE

*Acer saccharum* var. *glaucum* Sarg. Only in West Feliciana and Natchitoches Parishes; rare.

*Acer floridanum* Pax. Rare in East Louisiana, and only in West Feliciana Parish; more abundant in Natchitoches and Rapides Parishes. Flowers April 10.

*Acer leucoderme* Small. In rich moist woods over the State. Flowers April 2.

*Acer saccharinum* L. Seen only in swampy woods along the Red River near Alexandria, Rapides Parish.

*Acer rubrum* L. Swamps over the State; less common than its varieties. Flowers January 5. Fruit February.

*Acer rubrum* var. *Drummondii* Sarg. The common Red Maple in the neighborhood of New Orleans and in East Louisiana. Flowers January 5. Fruit February.

*Acer rubrum* var. *Drummondii* f. *rotundatum* Sarg. St. Tammany and Natchitoches Parishes, in comparatively dry woods.

*Acer rubrum* var. *tridens* Wood. The common form in North Louisiana. It occurs in less swampy places than the other varieties. Flowers January 15 to March 15 in different parts of the State.

*Acer Negundo* L. Borders of swamps and rich woods over the State. Flowers March 15.

*Acer Negundo* var. *texanum* f. *latifolium* Sarg. Near Natchitoches, Natchitoches Parish, and in vicinity of New Orleans. Flowers March 15.

### HIPPOCASTANACEAE

*Aesculus Pavia*. In East Louisiana. Occasionally a tree 40 feet high, of its largest size near Covington, St. Tammany Parish. Flowers March 15.

*Aesculus discolor* var. *mollis* Sarg. Sometimes a small tree up to 20 feet. West Feliciana Parish; common in west Louisiana.

### SAPINDACEAE

*Sapindus Drummondii* Hook. & Arn. Rich woods; near Lake Charles, Calcasieu Parish, near Alexandria, Rapides Parish, and near Tangipahoa, Tangipahoa Parish. Flowers April 15.

### RHAMNACEAE

*Rhamnus caroliniana* Walt. Borders of streams, rich woods over the State. Flowers April 20. Fruit September.

### TILIACEAE

*Tilia nuda* Sarg. Rich woods, West Feliciana Parish, and near Lake Charles, Calcasieu Parish. Flowers May 20. Fruit July 15.

*Tilia nuda* var. *glaucescens* Sarg. Wet places, Lake Charles, Calcasieu Parish, and near Natchitoches, Natchitoches Parish. Flowers May 20. Fruit July.

*Tilia floridana* Ashe. Widely distributed over the State, usually on rolling hills. West Feliciana, East Feliciana, St. Landry, Caddo, Winn, Natchitoches, and Calcasieu Parishes. Flowers May 15. Fruit June 15.

*Tilia floridana* var. *oblongifolia* Sarg. On rolling hills West Feliciana Parish Avery Island, Iberia Parish, and Natchitoches Parish. Flowers May 29. Fruit July 28.

*Tilia Cocksii* Sarg. Rich flat woods in vicinity of Lake Charles, Calcasieu Parish. Flowers May 18. Fruit July 12.

*Tilia caroliniana* Miller. Widely distributed west of the Mississippi



River, Avery Island, Iberia Parish, Jefferson Davis, St. Landry, Calcasieu and Natchitoches Parishes. Flowers May 15. Fruit July 12.

*Tilia caroliniana* var. *rhoophila* Sarg. Along the banks of the Calcasieu River near Lake Charles, Calcasieu Parish, and in Jefferson Davis Parish. Flowers May 25. Fruit July 15.

#### THEACEAE

*Gordonia Lasianthus* Ellis. According to Britton (North American Trees, p. 705) this tree occurs in Louisiana. I have seen no specimens.

#### ARALIACEAE

*Aralia spinosa* L. Borders of swamps and moist woods over the State. Flowers July. Fruit August.

#### NYSSACEAE

*Nyssa sylvatica* Marsh. In dry rolling woods, sometimes on the borders of swamps; over the State. Flowers April 15. Fruit September.

*Nyssa biflora* Walt. Often growing in water, especially ponds in the Pine-barrens; over the State. Flowers April 15.

*Nyssa aquatica* Marsh. Cypress swamps often growing in water; over the State. Flowers April.

#### CORNACEAE

*Cornus florida* L. Over the State except in Cypress-swamps. Flowers February 28 to April 10. Fruit October.

*Cornus asperifolia* Michx. In rich soil often becoming a tree; sometimes a shrub. Over the whole State. Flowers April 5.

#### ERICACEAE

*Kalmia latifolia* L. Seen only in the vicinity of Bogalusa, Washington Parish, where it is very abundant, reaching a height of 40 feet. Flowers April 10.

*Oxydendrum arboreum* DC. West Feliciana, St. Tammany, Tangipahoa and Baton Rouge Parishes. Flowers May 25. Fruit June 15.

*Vaccinium arboreum* Marsh. Upland woods and along streams over the State. Flowers April 10. Fruit August–September.

*Vaccinium arboreum* var. *glaucescens* Sarg. With the type west of the Mississippi River; often a shrub; near Shreveport, Caddo Parish, occasionally a small tree.

#### EBENACEAE

*Diospyros virginiana* L. Over the State, in the driest sandy soil and in swamps subject to overflow where sometimes for months the trees stand in water; occasionally forming extensive thickets. There are perhaps two distinct forms. Flowers May 2. Fruit October.

## STYRACEAE

*Styrax grandiflora* Ait. Over the State as a shrub; in West Feliciana Parish a tree 40 feet high; arborescent also near Natchitoches, Natchitoches Parish. Flowers April 10. Fruit July.

*Halesia diptera* Ellis. Wet woods and borders of swamps over the State. Flowers February 28 to April 10.

## SYMPLOCACEAE

*Symplocos tinctoria* L'Hér. In rolling woods and along streams over the State. Flowers April 3. Fruit June.

## OLEACEAE

*Fraxinus caroliniana* Mill. Along water courses and in swamps over the State. Flowers February 25. Fruit April.

*Fraxinus caroliniana* var. *Rehderiana* Sarg. Tangipahoa Parish.

*Fraxinus americana* L. Woods in rich alluvial soil and borders of swamps over the State. Flowers March 15. Fruit May.

*Fraxinus pennsylvanica* var. *lanceolata* Sarg. Banks of creeks and rivers and alluvial woods over the State. Flowers March 25. Fruit June.

*Fraxinus profunda* Bush. Widely distributed over the State on the edges of Cypress swamps; very abundant in swamps in the vicinity of New Orleans. Flowers March. Fruit May.

*Forestiera acuminata* Poir. Widely distributed over the State; usually a shrub; occasionally a tree 30–40 feet high along water courses in East Baton Rouge Parish. Flowers April 3.

*Osmanthus americanus* Benth. & Hook. Borders of streams and Pine-barren ponds in East Louisiana; common in St. Tammany, Washington and East Baton Rouge Parishes. Flowers March 3.

## VERBENACEAE

*Avicennia nitida* Jacq. Along the seacoast and adjacent islands, forming occasionally dense thickets. Occasionally a tree 30 feet high. Flowers May.

## BIGNONIACEAE

*Catalpa bignonioides* Walt. Banks of streams, West Feliciana and East Baton Rouge Parishes. Much planted and often naturalized. Flowers April 15.

*Catalpa speciosa* Engelm. Common over West Louisiana, probably naturalized from cultivation. Flowers April 15.

## RUBIACEAE

*Cephalanthus occidentalis* L. Borders of swamps and along streams over the State. Flowers April–July.

*Cephalanthus occidentalis* var. *pubescens* Raf. In the vicinity of New



Orleans; near Lake Charles, Calcasieu Parish, and near Natchitoches, Natchitoches Parish.

### CAPRIFOLIACEAE

*Sambucus canadensis* L. Frequently arborescent, with a height of 30 feet and a trunk 2 feet in diameter. Flowers March 28 to April 15.

*Sambucus Simpsonii* Rehd. A tall shrub or small tree; rich woods near Opelousas. Flowers April 15.

*Viburnum rufidulum* Raf. On rolling hills over the State. Flowers April 15. Fruit August.

NEW ORLEANS, March, 1921.

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## THE FOREST FLORA OF THE OZARK REGION

ERNEST J. PALMER

A GLANCE at a relief map of North America will serve to show the unique and interesting position occupied by the Ozark uplift with relation to the surrounding regions and the other great physiographic features of the continent. Between the foot hills of the Appalachians on the east and the Rocky Mountains on the west extends a vast almost unbroken plain, its surface conforming generally to the horizontal or gently tilted strata that underlie it, and modified only superficially by the forces of erosion, glaciation and similar agencies. The only place at which these wide spread rocky beds have been extensively disturbed by orogenic forces and thrust up conspicuously above the surrounding areas is in the Ozark region, situated approximately midway between the two great mountain systems and between the Great Lakes and the Gulf of Mexico. It is thus isolated and remote from both coast-line and other mountainous areas, and is completely surrounded by wide, fertile plains, that have for ages been the breeding grounds and battlefields of successive races of plants and animals, many of which, we may safely assume, have from time to time invaded the highlands or been forced to take refuge there from the pressure of aggressive competitors or ruthless enemies: For geological evidence proves that the Ozark region is one of the oldest land areas on the continent; and although portions of it have been subjected to various uplifts and depressions before the beginning of the cycle that gave it its present form, most of it has remained above sea level since very early times.

To the south of it lies the low, humid plain of the Gulf coast, with its rich forests of coniferous and deciduous trees, a region of deep swamps, dense cane brakes and impenetrable tangles of vines and herbage, alternating with low hills, sandy ridges and broad savannas, formerly teeming and still abounding in parts with a profusion of bird, reptile, mammal and lower animal forms; on the east is the broad, fertile valley of the Miss-



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