











# REPORT

OF



# BOTANICAL SURVEY

OF

SOUTHERN AND CENTRAL LOUISIANA,

MADE DURING THE YEAR 1870,

By A. FEATHERMAN,

LECTURER ON BOTANY AND PROFESSOR LOUISIANA STATE UNIVERSITY.

*See Feath. Rep. The Botanical Survey of Louisiana  
State Museum of Science and Art  
1871.*

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# REPORT

OF

## Botanical Survey of Southern and Central Louisiana,

MADE DURING THE YEAR 1870,

By A. FEATHERMAN,

*Lecturer on Botany and Professor Louisiana State University.*



LOUISIANA STATE UNIVERSITY, January 7, 1871.

Colonel D. F. Boyd, Superintendent Louisiana State University:

### THE MORAL AND INTELLECTUAL INFLUENCE OF BOTANICAL STUDIES.

The botanical survey of the State of Louisiana is not only important in a scientific point of view, but it can not fail to be productive of beneficial practical results. Botany, as a branch of the natural sciences, produces a more salutary influence to elevate and refine society, and raise the moral standard of civilization, than all the other sciences combined. Flowers are familiar friends and loved companions in every household, where refinement and virtue give tone and character to the social circle. I can do no better than quote, in this connection, the eloquent words of an able English writer, and apply them to the study of botany in particular: "It is fearfully true that nine-tenths of the immorality which pervades the better classes of society, originate from the want of an interesting occupation to fill up the vacant time; and as the study of botany is as attractive as it is beneficial, it must necessarily exert a moral and even religious influence upon the young and inquiring mind.

"The youth, who is fond of scientific pursuits, will not enter into revelry, for frivolous and vicious excitement will have no fascination for him. The overflowing cup, the unmeaning or dishonest game will not excite him. If any one doubts the beneficial influence of



these studies on the morals and character, I would ask him to point out the immoral young man who is devotedly attached to any branch of natural science. I never knew such a one. There may be such individuals—for religion only can change the heart—but if there be they are very rare exceptions, and the loud clamors which are always raised against the man of science who errs proves how rarely the study of the Creator fails to exert an ennobling effect upon a well regulated mind. Fortunate, indeed, are the youths of either sex who early imbibe a taste for natural knowledge, and whose predilections are not thwarted by injudicious friends."

It may indeed be said of the botanist what has been said of the astronomer, that a botanist who does not believe in the existence of God is mad, for the sublime beauties of nature which are constantly presented to his mind, must necessarily lead him from nature to nature's God, whom he recognizes as the author of all those splendid marvels of creative wisdom, which are scattered all around him for the use and enjoyment of man.

#### THE IMPORTANCE OF BOTANY IN AGRICULTURE AND MEDICINE.

Botany has an intimate connection with agriculture, and its practical bearing in this respect has not been sufficiently developed. The agriculturalist who combines science with experience and practical observation, may derive some valuable hints from his botanical knowledge, which might lead to the most important results, not only in the cultivation of the plants, which are the sources of his wealth, but in banishing from his fields those troublesome weeds and grasses which keep his plows and hoes busy during the whole period of the crop season. It is indeed a very remarkable fact that even physicians, otherwise well educated, know little or nothing about botanical science, when more than one-half of all the remedial agents employed, and some of them the most important of the pharmacopœia, are derived from the vegetable kingdom, while the other half, comprising mineral substances altogether incompatible with human organism, might be beneficially superseded by vegetable remedies of far greater efficacy and active powers, if physicians studied the numerous plants possessing medicinal virtues, which are diffused in the greatest abundance all over the surface of the globe. None of our medical schools has a chair of botany, which is certainly as great an anomaly in the educational progress of a nation

as if a law school had no professorship expounding the principles of the common and civil laws, which must be the foundation of the lawyer's professional acquirements, or if a theological school failed to require a knowledge of the Greek and Hebrew languages, which alone can enable the candidate for orders to expound the scriptures in spirit and in truth.

Besides your other valuable services in behalf of education the State of Louisiana owes you a debt of gratitude for the exertions made by you in providing the means to prosecute the botanical survey of the State, which will acquire for the University—strictly a State institution—one of the most valuable scientific collections, that will last for centuries if properly cared for, and which money could not buy nor favor procure. It is fit that Louisiana, the Empire State of the South-west, with its immense agricultural resources and its network of navigable streams, should be the first of all the States to place botany side by side with geology in the investigation of the physical and economic resources of the State.

The popular idea of a geological survey is that the geologist is prospecting—using an expressive term of the California miner—in order to discover the Ophir where gold is as abundant as common dust; or to find the New Castle where coal constitutes the solid crust of the earth. But these popular notions about geology have no application to Louisiana, for the nature of the geological formation of the State, is sufficient for the scientific geologist to determine at once, that these materials do not and can not exist here in a form to give them economic value. But while geology has undoubtedly a scientific and a practical side, botany has no less so. It is a curious fact in the history of education, that educated men should be entirely ignorant of the vegetable kingdom, which furnishes us with the bread we eat, the wine we drink, the fruits we relish, the clothing we wear, the most ornamental parts of the dwellings we inhabit, the light which changes the night into day, the ships as well as the materials of commerce which they transport, the fuel which equalizes the seasons and supplies the motive power of the steam engine and the locomotive. The vegetable kingdom, without which no living creature that breathes can live, is the most rich in resources and the most important in a commercial, artistic, mechanical and agricultural point of view. The study of botany is not only of the greatest interest to the natural philosopher, but it deserves to be

taught in every school, on account of its attractive features and the educational discipline it affords. It occupies, morally and mentally, a far higher rank than chemistry or geology, which treat only of inert matter and are acted upon by external forces, while botany treats of living organisms of complicated structure and wonderful arrangement.

#### SCIENTIFIC EDUCATION OF THE PLANTER AND FARMER.

Considering that the agriculturalist derives his wealth exclusively from the vegetable kingdom, and is, so to speak, the lord and master, who monopolizes its most valuable products, forcing nature by his constant attention and unremitting industry to yield up a hundred-fold the treasures confided to the fertile soil, it is still more strange that the educated planter and farmer should never have bestowed a moment's reflection upon the marvelous productiveness of the seed he sows broadcast over his land, and should never have investigated the principle of its germination, growth and development, and examined the structure and the nutritive element of the plants which are the life of his life and the source of his prosperity. He makes his daily rounds in his fields, watches the progressive advancement of his crops, counts up in his mind what quantity of sugar, cotton, corn, rice, wheat, oats, tobacco, or indigo each acre may yield, considers its actual value in money, but it never occurs to his mind that all these are living, self-supporting, and self-producing organisms, which God has created not merely for utilitarian purposes to supply the wants of the animal world, but as manifestations of His goodness and His wisdom, as living monitors to teach man his duty to labor and render himself useful, and to inspire him with an aim higher and nobler than merely to eat and drink and get rich, but to disenthral his soul from the enslaving materialistic ideas which cling to him and make him a mean and groveling creature.

The planters and farmers constitute in every country the majority of the population, and they are the most useful class of society. But by a perversion of human reason they have obtained but little attention from governments, except as a tax-paying class. We have, however, reason to be proud of our country, for its government has recognized the fact that the stability of free institutions must rest upon an educated and refined yeomanry, and it has consequently granted munificent donations to the States for the establishment of



agricultural schools, where the planter and farmer may not only receive a literary but a scientific and professional education. Medical schools, law schools and theological schools have been in existence for centuries, but a school for agriculture, the most useful and the most wide-spread of all professions, would have been considered, even fifty years ago, the most absurd of all institutions.

The agricultural college of Louisiana, which is soon to be established, should form one of the departments of the University, for it offers all the advantages such a school requires without much additional labor and expense. It has the geological and mineralogical cabinet. It will have one of the most extensive botanical museums of the South. It has already professors of chemistry, geology, mathematics, engineering, botany, modern languages, and it has also a commercial department, which are the principal branches taught in agricultural schools. It only needs in addition professors of applied chemistry, of practical agriculture and the mechanic arts. As the funds derived from the sale of the land scrip can not be diverted for the construction of college buildings, the University buildings, wheresoever located, could be so constructed as to combine both schools, and would thus save the State considerable expense.

#### AGRICULTURAL RESOURCES OF LOUISIANA.

The agricultural resources of Louisiana are very great. There is no State in the Union, and no country on the globe of equal dimensions, which can be compared with her in the salubrity and mildness of her climate; the extent of her alluvial and arable lands; the variety of her agricultural industry; the numerous navigable streams, by which she is intersected, and her facilities for ocean navigation. A State for which nature has done so much, and man has done so little; a State where the orange and banana ripen their fruit in the open air, and give to it an intertropical character; a State where cotton, the most valuable product that feeds the commerce of the world and regulates international finances, flourishes in its highest perfection; where sugar, the indispensable luxury of every household, can be produced in quantities sufficient to supply forty per cent. of all that is consumed in the United States; where rice is cultivated for exportation, where corn grows most luxuriantly, where tobacco of superior quality can be produced, and wheat and oats, and all other cereals and almost every other product of the field, the garden and

the orchard would thrive with a vigor unsurpassed by any other climate; a State that possesses such invaluable natural advantages, should be foremost in science and literature, and in institutions, created and designed for the diffusion of useful knowledge. It should strive to become the modern Greece of America for learning and refinement; and the Italy of the western continent for its inexhaustible fertility, and the neatness, beauty and high culture of its farms and plantations.

I trust I may be pardoned for this ardor in the cause of civilization, but I feel a deep interest in the State of Louisiana. I know her people to be a peculiar people; they, like the Virginians, still retain some State pride, they never call themselves by the indefinite and vague name of Americans, but they are Louisianians in manners, sentiments and feelings. They combine the disinterestedness and humane sympathies of the French and Spaniard with the chivalric bearing and the practical sense of the Englishman. I know what civilization ought to expect of them; and I equally know that they can and will accomplish the high destiny reserved for them, which will fill a noble page in the world's history.

#### SOIL OF LOUISIANA, DIVIDED INTO CLASSES.

The alluvial lands of Louisiana, protected by an effectual levee system, would present the most magnificent agricultural domain that can be found anywhere within the limits of the same extent of country.

The object which I had in view in traveling through the State enabled me only to visit about eight or nine parishes. But I was struck with astonishment at the inexhaustless fertility of the soil extending over such a vast area, as I was passing in my excursions through the alluvial and marsh prairie regions of the Red river, the Mississippi, Bayou Barataria, the Atcha'alaya and the Teche, comprising millions of acres of the most fertile and most productive lands. The alluvial lands below Red river are estimated at 7,860,000 acres, which, if cultivated, would be capable of supporting a population of ten millions of people, in addition to the fertile lands in the interior, not subject to overflows and requiring no protection.

The soil of Louisiana, scientifically considered, may be divided into the following classes:

1. Alluvial soil. 2. Marsh prairie soil. 3. Port Hudson soil. 4. Orange sand soil; and there may perhaps be added 5. Limestone soil, comprising the Mansfield and Jackson formations; but of the last I can not speak from personal observation, as I have not yet visited the northern portion of the State.

The alluvial soil may be sub-divided into Red river alluvion, confined to the Red river regions, and the Mississippi alluvion, which extends along both banks of the Mississippi, being interrupted only on the east bank by the Port Hudson deposit, which terminates below Baton Rouge. The Mississippi alluvion is also the characteristic soil of the upper Atchafalaya as far, at least, as the mouth of Bayou Courtableau.

The Port Hudson soil is composed of a fine silt, deposited upon a loamy sub-soil, and is supposed to be a fresh water formation, when the Mississippi was still an estuary of the Gulf, and Port Hudson its extreme northern limit. This soil is confined to a very small belt, comprising a portion of East Feliciana and East Baton Rouge, which is not more than ten or eleven miles wide, being approximately, though not strictly, bounded by the Mississippi and Comite rivers. It is fertile and of easy cultivation, and is especially adapted to the production of cotton and corn.

The Marsh prairie soil predominates in the Attakapas parishes, which border on the Gulf, or were formerly below the Gulf level and whose soil was formed from the sea marshes, being gradually raised above the reach of overflows. It extends within five hundred yards of the south bank of the Têche, for the soil on the north bank of the Têche is all Mississippi alluvion, subject to overflows from that river through the Atchafalaya and Grand Lake. It also comprises some of the finest lands and the most valuable sugar plantations on Bayou Barataria and the numerous other bayous and water courses in which that portion of Louisiana abounds. The agricultural capacities of those regions, have as yet not been sufficiently developed, because the shallowness of the bayous and lakes which are so numerous, that some of them have not yet received specific names, prevent easy communication by way of the Gulf with New Orleans, the centre of commerce, which can only be reached by sailing round a long distance to the Belize and up the mouth of the river. Its only direct communication with New Orleans is by Harvey's canal,



which is navigable only for very light draught steamboats, and at the slow rate of traveling of three miles an hour.

The orange sand soil may also be divided into two kinds of soil. The red sandy loam soil, and the fossiliferous gravel soil. The red sandy loam soil forms a ridge along the banks of the Teche, which was never overflowed, either by the waters of the Gulf, or the waters of the Mississippi and its tributaries. This red sandy loam ridge crops out near Port Barre, where the Teche divides off from the Courtableau, and extends, in St. Landry, to the towns of Washington and Opelousas, beyond which it ceases to be visible on the surface, being covered by the prairie soil. It also forms the foundation of the Atchafalaya river bed, and the lower strata of its banks upon which the alluvion is deposited. Geologically considered this soil might perhaps be classed with a lower series of the Port Hudson formation, but with reference to its properties as soil, it is essentially an orange sand loam, mixed with limestone ingredients, and possesses sufficient fertility to render its cultivation remunerative to the planter and farmer. I am the more inclined to class it with the upper series of the orange sand period, judging from the botanical indications furnished by the prevalent summer weed, which is invariably the bitter-weed (*Helenium tenuifolium*) where the sandy loam, or the fossiliferous gravel soil prevails.

Near Opelousas it almost traces the line where the red sandy loam terminates and the prairie soil begins. In Rapides, on the banks of the Teche, in St. Landry near Washington, and again beyond Ville Platte and Chicotville, from whence it extends to the fossiliferous gravel soil; in St. Tammany, in Tangipahoa, in East Feliciana, every where the yellow flowers of the bitter-weed cover the surface of the soil, and in some localities, are crowding out every other vegetation; while the Port Hudson and the alluvial soils produce invariably the four-toothed *Helenium* (*Helenium quadridentatum*), another species of the same genus, which grows there with the same rank luxuriance.

The same sandy loam, only of a deeper and almost crimsonred, crops out near Clinton in East Feliciana, where the Port Hudson soil disappears, and pine and black jack form the characteristic growth. There it covers the second subdivision of the orange sand soil, composed of a whitish or grayish clay and fossil gravel beds.

The fossiliferous gravel soil is almost devoid of those properties which render the cultivation of the Southern staples profitable. It

has considerable extent in this State. The Amite river is its western limit, and it is bounded on the east by Pearl river. It embraces the parishes of Tangipahoa, St. Helena, Livingston, Washington, St. Tammany and portions of other parishes.

I do not wish it to be understood that my geological references have the least authority; I have only touched upon the geological features of the country, in order to enable me to present the subject in a more tangible form, but I did not intend to express a decided opinion on the nature of the geological formations of Louisiana, and any seeming contradictions, if there are any, between this report and that of the geologist, must be decided in favor of the geological report, which alone can be considered as authority in this matter.

Before dismissing this subject, it is perhaps proper to say that the foregoing division of the soil of Louisiana refers only to the general nature of the surface in any given region of country, without reference to the exact proportions of its chemical constituents; that the surface soil is always more or less modified by local circumstances, and varied by creeks, bayous, lakes and rivulets, which sometimes impart fertility to the lowlands, when the higher lands are nearly destitute of productive qualities, to render them valuable for tillage. Even the second series of the orange sand soils might be improved by the application of lime manure, which is ready at hand in the shell banks of Lake Pontchartrain, Grand Lake and the shell islands in the shallow waters of Barataria Bay; or they might be planted in long leaved pine for the production of turpentine, which flourishes and grows to a great height in the fossiliferous gravel sand soil, and which would render the land as valuable almost as that of a cotton and sugar plantation. Timber plantations are very common in England, and companies might be formed, possessing sufficient capital, for the purpose of appreciating these lands, by planting them in the turpentine pine, which furnishes a valuable article of commerce, of which the Carolinas have almost the monopoly.

#### BOTANICAL ITINERARY.

##### EAST AND WEST BATON ROUGE.

The botanical survey of the State of Louisiana, in connection with the geological and topographical survey, having been determined upon, I assumed its duties, in accordance with your directions,

early last spring, by devoting every Saturday and the few leisure hours I could spare during the rest of the week from my other professorial duties, to botanical excursions within the limits of the parishes of East and West Baton Rouge. I visited early in April the extreme western portion of the parish of East Baton Rouge, on the Amite river. The land lying between the banks of the Mississippi and the Comite rivers, where it is not Mississippi river alluvion, is composed of the fine silt of the Port Hudson formation, and is very desirable land for the cultivation of cotton. The principal trees, which constitute the predominant growth of the forest, are the water oak, the swamp chestnut oak, the post oak, the willow oak and beech, intermixed with magnolias, hickory, locust and a few scattered tulip trees. But, passing the Comite river, the soil gradually changes; it partakes of the nature of the red sandy loam of the upper series of the orange sand formation, and being largely intermixed with lime nodules, which, in one particular place, literally pave the edge of the road with their hard and bone like concretions, the land is still good, and produces fair cotton and corn crops. On approaching nearer the Amite river, the soil becomes more sandy; the swamp chestnut oak ceases to form the characteristic growth: water and willow oaks and hickory nearly disappear, and the beech alone remains, with black jack and post oak, and an occasional magnolia. On the banks of the Amite, where the fossiliferous gravel soil is reached, the pine makes its appearance, but sparsely intermixed with oak and a few other trees. This soil is poor, and, unless heavily manured, does not yield good crops to render its cultivation profitable.

I also made several flying excursions, during the spring season, across the river, in West Baton Rouge; but while I collected many interesting specimens in the vicinity of the Mississippi river, want of time and the swampy nature of the roads prevented me from extending my botanical excursions into the interior of the parish. The soil in this parish is very rich, partaking of the nature of the Mississippi alluvion, and the sugar plantations present a far neater appearance than those on the east side of the river. The land on Grosse Tete bayou is considered the finest in the State, and is preferred to the river land, because it is less infested with the nut grass, which taxes so much the patience and industry of the planter.



## RAPIDES PARISH.

After I had finished my course of instruction at the University, I made a trip up Red river, on the fifteenth of June, and visited the neighborhood of the old Seminary, which offers the richest field in the State for the collection of such plants as are generally found in sandy soils and in pine wood regions. Nature seems to be lavish in her gifts of floral adornment where she has withheld fertility from the soil. This is indeed one of the wise provisions of Divine Providence, by which the balance in the organic world is maintained, and its existence and perpetuation secured. Were all lands equally productive of such plants which contribute to the nourishment and the economic use of man, every other plant would gradually be exterminated, and would cease to hold its place in the organic world, which is composed of animals and plants, each of which is necessary to accomplish the designs for which each species has been called into existence. The disappearance of a single species, struck from the aggregate of living organizations, might extinguish, for want of proper food, many insects or birds and other inferior animals, which in their turn are indispensable links in the indissoluble chain of association, by which all the parts of the universe are bound together.

The soil of Rapides, except where the hills of the pine barrens are covered with the fossiliferous gravel or red loam of the drift period, is that of the Red river alluvion. Although different in some respects in its constituent elements from the Mississippi alluvion, it is equally productive of cotton, sugar and corn, and is as inexhaustible in its materials of fertility. It is even more highly valued by some planters, because the banks of Red river do not cave much, and the land can therefore be more effectually protected by levees.

## NEW ORLEANS.

I collected in Rapides during my four days' sojourn there a considerable number of plants which bloom in early summer; but as my presence on commencement day was desirable, I returned to Baton Rouge, witnessed the exercises of the last day of the scholastic year, and a few days after the close of the session, I proceeded to New Orleans, which I selected, on account of its facilities of com-

munication by railroads and steamboats, as the centre of my operations for this year's survey. In making an extensive botanical tour of long duration, it is indispensably necessary, in order to preserve the plants collected, to select some convenient place as headquarters, where the collector has a room, and where he is uninterrupted in his tedious arrangements by idle spectators, to enable him to determine plants which require but little research, apply the requisite pressure to dry them, and take them out from the press for several consecutive days, change the drying paper, and when sufficiently dry to place them in new sheets, where they permanently remain until they are finally disposed of and classified. This operation is far more important than the collection of plants, and requires much more time as well as patience, and more constant attention. In preparing an herbarium of botanical and scientific value, it is necessary to collect, at the same time, a great number of specimens of the same species, and to select from those the best developed, and those that show best all the parts of the plant. A considerable number of specimens of the same species must be dried, as the herbarium should contain from four to six specimens of each species, and as some of those, which are subjected to pressure, will prove worthless, it is apparent what amount of labor it requires even to dry fifty specimens, which will fill from two to three hundred drying papers. Fifty specimens might be collected in certain localities in a few days, where no collection of the same kind has ever been made, but it would require several weeks to make a final disposal of them. I make these explanatory remarks, because they refer to facts, which no one but a professional botanist could know; otherwise there might be some misapprehension with regard to my movements, as I was only able to visit seven or eight parishes during two months traveling, and only a small portion of these parishes.

On my arrival in New Orleans I immediately went to work to examine the botanical prospects of the surrounding country, and as it was entirely a new field, I found many interesting specimens, some few of which I met with no where else in my travels. I made several excursions to City Park, Bayou St. John, Carrollton, Algiers and Lake Pontchartrain.

In New Orleans and its vicinity I found the high-stemmed *Rudbeckia* (*Rudbeckia maxima*) and the Late-blooming *Parthenium* (*Parthenium hysterophorus*), and near Lake Pontchartrain grows a



species of hibiscus (*Kosteletzkyia Virginica*), with large pink flowers, which would make a beautiful ornamental garden plant.

In the immediate vicinity of New Orleans, between the river and Lake Pontchartrain, where the New Orleans and Jackson Railroad passes, the soil is that of the Mississippi alluvion, and is well cultivated in cotton, sugar and corn. North, between Lake Pontchartrain and the city, there are extensive gum, cypress and oak swamps, which are valuable only for their timber; and east and southeast are the marshes extending to Lake Borgne.

#### RAILROAD TRIP TO PONTCHATOULA AND AMITE CITY.

After having visited the surrounding country about New Orleans and ascertained its botanical resources, I proceeded on the New Orleans and Jackson Railroad to Amite city, which is about ten miles from the State line. Between Kenner and Frenier there is a large tract of swamp prairie, where the Rose-mallow and the Arrow-leaved *Ipomaea* form, as far as the eye can reach, a carpet of flowers, variegated with pink, white and crimson. A few miles from Pontchatoula, where the pine woods commence, the land on both sides of the railroad are gum and cypress, or willow and cypress swamps, which give to the country a very monotonous appearance, unless interrupted by a few miles of swamp prairies. From Bayou de Saules to Deseret's station the railroad tract is but a short distance from Lake Pontchartrain. Tangipahoa parish is, as I am told, about sixty miles long, and from three to five miles wide, and is, in point of soil, perhaps one of the poorest parishes in the State. The soil is sandy, without much intermixture of clay or gravel, and the farms are principally on the water courses, where the land is low and enriched by the deposits produced by high water, and which alone can impart some fertility to the low lands. The prevailing growth of the forest is the long and short-leaved pine, post oak and black jack, and near the Tangipahoa river water oaks and beech are not uncommon. The prevailing weed is the bitter-weed, which grows here in rank luxuriance. The general characteristics of the plants which flourish here are similar to those of the pine woods of Rapides. Amite city is the largest town of some note in this parish. It has a fine hotel and a number of respectable dwelling houses. I also stopped one day at Pontchatoula, and the numerous

new specimens I found there well compensated me for the long walk I had to take in the heat of the mid-day's sun, for my attempt of hiring a horse had failed from the fact that the few disposable horses in town were all affected with the distemper.

#### BRASHEAR CITY AND FRANKLIN—ST. MARY PARISH.

As soon as circumstances permitted, I set out for St. Mary parish, for, being one of the richest of the gulf parishes, I supposed it would offer a fine field for botanizing. To travel from New Orleans to Brashear City it is necessary to cross the river in the Jackson park ferryboat, and the railroad cars start at 8 o'clock in the morning from Algiers, and reach Brashear City at 12 o'clock, M. The country through which Morgan's Texas Railroad passes is rich in alluvial soil, and the sugar, cotton and corn plantations I saw were generally in good condition; and if the crops had, in a few places, a sickly appearance, it was not the fault of the soil, but was owing to the want of steady labor to keep the fields clean from grass and weeds.

Brashear City is scattered over a considerable extent of ground, but its appearance does not correspond with its high sounding title. It is only a jumble of mean and insignificant looking one-story houses, and has not a single regularly built up street. It is, however, of some importance in a commercial point of view, for here all the cattle are landed from the Texas steamers. It is the terminus of Morgan's New Orleans and Texas Railroad, and is the point of departure of the Galveston and Rockport steamers by Berwick's Bay, which, by the by, is not an arm of the sea, as might be supposed, but a kind of inland fresh water bay interposed between the Atchafalaya river and its mouth. But notwithstanding that Brashear City is an inland se port, and the terminus of a railroad well patronized, it is nevertheless a nondescript place, and it has not a single regularly laid out wagon road leading from there to any part of the world. I suppose that its water and railroad communication renders all other roads a superfluity. It has the Atchafalaya river and Berwick's bay on the west, and Lake Palourde lies east of it, while Bayou Boeuf empties below the town into Berwick's Bay, and thus encloses a triangular strip of land which forms an island called Tiger island.

In the outskirts of the town, along the banks of Bayou Boeuf, miles of abandoned lands can be seen, as level as a prairie, which were cultivated before the war, but are now permitted to lie idle for want of capital, and which would be productive of fine crops of sugar, cotton or corn, if properly managed. The prevailing timber trees in this region are the live oak, the water oak, the sweet gum and locust. But the trees are all thickly overhung with the funereal long moss, which, if it were not an air plant, might be supposed to prey upon the vital sap of these trees, and eat out their substance, for the greatest number of them are of a stunted and scrubby growth, and many old trees, being in a state of decay, are rapidly dying out. This sickly appearance of the timber trees is probably owing to former periodical overflows, to which these forests were exposed from the Mississippi waters. Elder bushes and Trumpet flowers, the Four-toothed Helenium and the Burdock—the two latter familiar Baton Rouge acquaintances—constitute the rank vegetation during summer, which covers the face of the land. My excursions were principally confined to within two or three miles in the vicinity of the town, on both sides of the bay. I found several specimens here which I had never seen before, nor have as yet met with in any other part of the State. The Grass-leaved Schollera grows abundantly on the edge of Berwick's Bay, and its long wiry stems, grass-like leaves and small yellow flowers cover large patches on the shallow waters of the bay, which, in the distance, appear like floating garden spots in the midst of the waters. On the banks of the Atchafalaya I found the long-flowered tobacco (*Nicotiana Longiflora*,) which is hardly indigenous in that part of the country, and must have been introduced from other parts of the world.

I remained in Brashear City but one day, and availing myself of the daily steamboat line up the Têche, I proceeded to Franklin, the parish site of St. Mary, a distance of thirty miles, which I reached in the evening, after six hours travel. The Têche empties into the Atchafalaya river, about twelve miles above Brashear City, and the country a short distance beyond its banks, may be considered the garden spot of Louisiana. The sugar plantations of the lower Têche are perhaps, with the exception of Cuba, the finest in the world. The country residences are for the most part neat cottage houses, commodious and well constructed, but not as elegant as the fine mansions of the coast plantations. The sugar houses are sub-



stantial and solid, but display no architectural taste. The Grand-Wood place has a fine drawbridge, or rather swinging bridge, which connects the southern with the northern bank, and from this point up to Franklin nearly every plantation has its drawbridge and landing, and the river front of the south bank seems to be entirely fenced in. The immediate banks of the Têche are composed of a sandy, red loam ridge, which I have classed with the upper series of the orange sand soil, and which is but moderately productive, and if not manured becomes exhausted in four or five years. This ridge is not more than four or five hundred yards wide on each bank of the river. The sugar lands on the south bank have been redeemed from the sea marshes, and this soil when wet is as black as coal. The humus accumulated in it for ages renders it almost inexhaustible. The land beyond the immediate north bank is composed of Mississippi alluvion, and although as fertile as the soil of the opposite side in the production of sugar and corn, the plantations are more frequently interrupted by tracts of woodland, because the backwaters of the Mississippi frequently inundate these regions through the Atchafalaya and Grand Lake; while the high and receding waters of the Gulf never reach the narrow strip of land, not more than three or four miles wide, extending from the south bank of the Teche to the impassable marshes of the Gulf. The lowest swamp lands, which are not susceptible of cultivation and are overgrown with the finest cypress this continent produces, are made available by the proprietors of plantations on the south bank for lumber, for they had the good sense of constructing fine sawmills on their plantations. The alluvial land on the north bank is also confined to a narrow strip from three to five miles wide, being bounded on the one side by the Teche and on the other by Grand Lake and other small lakes connected with it, which of itself forms an inland sea, from thirty to forty miles long.

The characteristic timber trees of the Teche country, are the live oak, the water oak, locust and hickory. The Bitter-weed (*Helenium Tenuifolium*) covers the red sandy loam ridge of the Teche, and appears only on the sugar lands as a stray straggler, whom accident has transplanted upon uncongenial soil. The edge of the sea marsh, near Bayou Portage, which is timberless, is rank with sedges and a new species of *Hydrolea*, which I have named *Hydrolea Ludoviciana*.

The distance from Franklin to a point on Bayou Portage, as far as it is accessible on horseback, is about three miles. It is seven miles from Bayou Portage to Red Fish Point, immediately on the Gulf of Mexico, which, on account of the impassable sea marshes, is inaccessible by land, in all the Attakapas country, and can only be reached in skiffs through the bayous which wind through the marshy lowlands, overgrown with rank vegetation, and entirely covered with water during the rainy season. I passed through strips of timber land, principally live oak, water oak and locust, and here the dwarf palmetto (*Sabal Adansonii*) attains a considerable height, and, if I am permitted to use the expression, forms the undergrowth of these forest wilds, with the ever present long moss hanging from the tree branches in long festoons, which gives to the scenery a semi-tropical appearance; and were it not for the mosquitoes and sand flies which reign supremely in these parts, the lover of nature might enjoy for a short time the solemn stillness of the solitude, where nothing is seen but the canopy of heaven, the bright green foliage of the trees, brought into relief by the ashy gray of the long moss, the fan-like leaves of the palmetto, and the calm, still waters of the Portage. The edge of the sea marsh which forms a timberless marsh prairie, is grown up with marsh grasses and rushes, and affords valuable pasture ground for stock; and stock farms would probably pay as well as the cultivation of sugar, requiring less capital and less labor.

Franklin is a town of considerable size, containing from twelve to fifteen hundred inhabitants, is regularly built, and has many elegant private residences, which is a sure indication of the refinement and intelligence of a community. The side walks of the town are made solid by means of shells, which are brought from the lakes on the opposite side of the river.

To give some variety to my narrative, I may be permitted to state, not as a legitimate item of my report, but as a curious incident of my travels, that on Sunday night, one of the two churches being open for public worship, the whole congregation consisted of seven persons, and I was one of their number. The idea naturally forced itself upon my mind, that the people of Franklin must either be very good, having passed the praying point, or they must be retrograding in the opposite direction. Which of these alternatives is the true one, it is not important to decide.

This part of Louisiana is considered the paradise of hunters, deer abound here, and bears are very numerous in the marshes, and have been killed within a mile of town.

#### MANDEVILLE AND COVINGTON—ST. TAMMANY.

The Teche country, while unsurpassed in agricultural resources, did not present, botanically, as much interest as I anticipated, and as I was informed that the characteristics of soil and vegetation of New Iberia parish and higher up the Teche, were similar to those of St. Mary, I concluded to return to New Orleans, in order to branch out in another direction. I took the Pontchartrain railroad cars to Lakeport, and from there a steamboat conveyed me to Mandeville, a town in St. Tammany parish on the northern shore of the lake. Lake Pontchartrain, on a bright and sunny summer day, presents the most beautiful sheet of water in the Southern States. Near the mouth of the Tchefuncta river, the azure blue of the cloudless sky, the unstained whiteness of the distant lighthouse, and the dark green foliage of the forest trees on shore, effectually contrast the ashy gray of the rippled waters, and the scenery is altogether picturesque. Mandeville is reached in four hours' time. The soil around the town belongs to the second series of the orange sand soil. The banks of the lake are composed of pure sand, deposited upon a grayish stiff clay, colored in streaks with red and yellow hydroxide of iron. The back part of the town is located in a pine wood swamp, and during rainy weather the streets, and even the sidewalks are literally under water, and are almost impassable to foot passengers. The swamp soil is covered by a thin crust of vegetable mold, which renders the land productive for a few years of fair cotton, corn and rice crops. But the highlands are composed of pure sand, with a subsoil of clay, or the clay itself forms the surface soil. The water oak and swamp chesnut oak, post oak and sweet gum grow here to a great height, intermingled with short leafed pine, which forms, a few miles from the lake shore, almost the exclusive growth of the forest. The prevailing summer weed is the characteristic bitter weed. Mandeville is a town of respectable dimensions. It is the summer resort of New Orleans families, and is said to contain several thousand inhabitants during the bathing season. The principal street extends along the lake shore; and each residence, being gen-



erally rented for the season to the city people, has a bathing establishment, consisting of a small cabin built in the lake, at some distance from the shore, which is approached by a narrow plankwalk, protected by bannisters, constructed upon posts, and raised from ten to fifteen feet above the surface of the water. During the winter Mandeville is a deserted village, for the few proprietors and owners of houses, who remain there, live exclusively on the income derived from the rent of their houses during the summer months; and the surrounding country is too poor to support a town of any size.

There is a colony of Indians (Choctaws) near Bayou Lacombe, about seven hundred in number, a dozen of whom—men, women and children—were emigrating from their settlement, and passing through Mandeville on their route. I was struck with the low and degrading condition of those who were once the lords and masters of this continent. Dressed in civilized rags, the once brave and lordly red man is now the mean and abject beggar of American civilization, appropriating to himself all its vices, without adopting its counteracting virtues. The squaws were carrying their papooses, or a portion of their scanty household ware, in long baskets strapped to their forehead, like cattle yoked to the plow, and thus they were wending along their weary way in true Indian file, while the men leisurely measured their steps, with their gun or perhaps a venison ham strapped to their shoulders. “O! how are the mighty fallen!”

From Mandeville I proceeded to Covington, which is about ten miles distant, the road passing through the pine woods. Here I found for the first time the Violet-flowered *Stokesia* (*Stokesia Cyanea*), a beautiful composite flower, which is far more ornamental than some of the rare exotics cultivated in our gardens. I have thus far not met with it in any other part of the State. Covington is on the Bogue Felia, one of the branches of the Tchefuncta river, a navigable stream which empties into Lake Pontchartrain; but steamboats come only within three miles of the place. It is the parish site of St. Tammany. It has a few regular streets; but most of the private residences are scattered over a large area of ground, with the pine woods all around them. These are very respectable looking frame houses, generally owned and occupied by people who have small stated incomes, drawn from other sources than such the town affords. The steamboat arrives three times a week, and thus establishes regular communication between this place and New Orleans. The

landing is in the midst of the woods, with no house or shelter of any kind within three miles of it. A number of carriages are punctually in attendance, at the arrival and departure of the boats, to convey passengers to and from the town. The soil is composed of sand or a stiff yellowish clay, tinted with iron; and a short distance from town the banks of the Bogue Felia are made up of layers of this yellowish clay, and are from twenty to thirty feet high. This kind of land is almost valueless, except for its timber, and for the manufacture of bricks; and there are a considerable number of saw-mills and brickyards on the Tchefuncta, the lumber and brick being sent to New Orleans in sloops, which swarm in these waters and on the lake. At one of the sawmills, we passed, the river bank was composed of bogue iron ore in layers, which is one of the characteristics of the orange sand formation. The short leafed pine, intermixed with an occasional oak, forms the predominant growth of the woods. The botanical specimens collected here were numerous, and many of them interesting.

#### GRAND ISLE.

As it was impossible to reach the gulf coast in the Attakapas parishes, I availed myself of the steamboat communication which places New Orleans in direct connection with Grand Isle. I started on Saturday morning at eight o'clock, in the Col. D. S. Cage, a small steamboat drawing about eighteen inches water, from Harvey's canal, which takes its beginning a short distance from the river in the outskirts of the town of Algiers. It is six miles long, from thirty to forty feet wide, and just deep enough for a light draught steamboat to travel from three to four miles an hour. The land on both sides of the canal is wholly composed of willow, gum and cypress swamps, and is not susceptible of cultivation. There are a few settlements on the banks of the canal, consisting of a number of miserable huts surrounded by a few acres of cleared land cultivated in corn; fishing being the principal occupation of these "natives." Bayou Baratavia, which is the outlet of the canal, is a beautiful little stream whose waters are of the deepest green, and it has some fine sugar plantations on its banks. On this bayou, as well as on the bayous and lakes with which it connects, there are miles of marsh prairies with not a single tree, except perhaps some stray willow



to shade them, and the dusky woodland in the distance bordering the horizon. After two hours' traveling the bayou gradually widens. In some places there is a distance of a quarter of a mile which separates the opposite banks. Here the land is principally composed of marsh prairie soil, thickly overgrown with marsh grass (*Spartina juncea*). Barataria bayou connects with Bayou Rigolet and Little Lake, which empty in St. Denis bayou. These bayous and lakes are dotted with shell islands, some of them quite prominent for their extent and height above the level of the water. These shells might be made a valuable commercial commodity. They are the best material for making solid and substantial roads, and would serve as valuable manure to improve the pine lands of Louisiana, and they are partially used now for these purposes. But as the supply is almost inexhaustible they ought to be worked systematically and the shells transported on a grand scale. These islands are, in an agricultural point of view, as valuable as the guano islands, and to fertilize the orange sand soil shell lime is a far more useful manure than guano. This species of shell (*Gnathodon caneatatus*) is found nowhere else in the world except in Lake Pontchartrain, Grand Lake, the waters of the Gulf, and Mobile Bay; and some enterprising capitalists of Louisiana would confer great benefit upon the State in bringing this article into market for the use of planters and farmers, and for making some of the roads of Louisiana, which are almost impassable during the winter, permanently solid, far superior to any plankroads that can be constructed.

The banks of these multifarious water courses, all formed by the receding waters of the Gulf, assume many zigzag shapes and fantastic indentations, and the water spreads and covers a vast area, forming all around numerous narrow points of land. Sometimes the marsh grass obstructs the bed of the stream, and leaves only a narrow channel, just wide enough to let the boat pass through. St. Denis Bayou has its outlet in Grand Lake, which constitutes the western border of Barataria Bay, and is about fourteen miles from Fort Livingston and seventeen miles from Grand Isle. These bayous and lakes form numerous branch bayous in every direction, which gives to the whole country the appearance of an inland archipelago, interspersed with small islands and peninsulas of every imaginable shape. The land being perfectly level, the sight is not obstructed, and the eye is struck with these ever-varied alternations

of land and water, which are constantly contending for mastery; but in proportion as the bed of the Gulf is sinking, these lands will rise and become habitable to man, now occupied by the wild duck, the crane, the gull and sometimes by a stray fisherman or duck-hunter. Grand Lake connects with Caminada Bay, which is very shoal water, being in some places not more than three feet deep. It borders Grand Isle on the north. At Fort Livingston, which is situated on Bonne Terre Island, and which defends Barataria Grand Pass against marauders and smugglers, is a fort of very little importance. The work is constructed of brick, with a lighthouse, to prevent its being surprised at night in its loneliness and isolation. It has no garrison; a lieutenant and a sergeant compose the whole military force; and this is considered sufficient to hold it against any enemy, at least in time of peace. This and the adjoining islands were the headquarters of the pirate Lafitte and his robber crew.

Grand Isle can only be approached at its northern border and from Caminada Bay when the tide is high; for on its southern Gulf shore no boat can approach it on account of shoal water and three sand banks near the beach, which form breakers and in stormy weather would render navigation dangerous, even if the water were deep enough near the shore to allow a passage. At low tide the boat casts anchor within a mile and a half of Grand Isle wharf, and passengers and baggage are transported in yawls to the island.

The beach of the Gulf shore is, as might be supposed, pure sand intermixed with shells thrown out by the waves which are at all times dashing against the shore. But about half a mile from the beach the soil becomes a black muddy clay, similar to that of the sea marshes, covered with a layer of sand swept there by the overflows, which are very rare here, and are produced only by violent storms and last but a few hours. In 1854 there were several fine sugar plantations on the island, but the overflow of that year drenched, the cane with sea water, and as salt is most injurious to the cultivation of sugar, most of the cane was killed, and no attempt has since been made to revive its culture, which might be successfully accomplished by deep ploughing so as to bring the marsh soil to the surface. The sea island cotton is still produced here to a limited extent. Garden vegetables of all kinds are cultivated here with great success, and truck farms for the New Orleans market might be made profitable.

The island is nine miles long and one mile wide. The principal natural growth is the live oak and the yaupon in the form of low thickets. A few tree palmettoes are seen here and there near the beach. The live oak is low and stunted and grows only on a few ridges; the rest of the island is destitute of trees of any kind, and the inhabitants get their fuel from the drift wood floated to the Gulf shore. There is a piece of low ground near the beach, where a considerable number of barkless live oak trunks, with their leafless branches, are looming like spectres over the land and sea level, as if attentively listening, with outstretched arms, to the roaring din of the waves, incessantly advancing and receding and dashing the foaming surf against the shore.

There are a great number of small islands in the vicinity inhabited by fishermen, oystermen and duck hunters, for these waters supply the New Orleans market with the best oysters, fish and crab the sea affords, and also with wild ducks, which resort to the marsh prairies by thousands, feeding on the grain of the marsh grasses.

This secluded spot is the summer resort of many families and gentlemen of leisure from New Orleans, who avail themselves of the gulf breeze, the sea bathing and the fine table of the host, who furnishes the best the sea and land affords. But when the winds are lulled, the musquitoes, like a host of locusts, season with a drop of poison the cup of pleasure. I have collected here a few sea weeds and sea shells which are of some interest as they are the products of Louisiana waters. The specimens of the plants collected are those peculiar to the sea coast, and are found nowhere else. The greatest number of them have fleshy leaves, which is one of the wise provisions of Providence, that enables plants to grow in a dry sandy soil which holds no water, by storing away the materials of nourishment in the leaves covered with a thick and impermeable epidermis. The Goat-foot leafed *Ipomœa*, with thick, bright green, glossy orbicular leaves, and showy crimson flowers, is trailing all over the sand beach near the gulf shore, where no other vegetation flourishes.

Politically considered, the island forms a part of Jefferson parish, and is, it is said, ninety miles from the courthouse. In some respects this island may be looked upon as a primitive paradise of the golden age of society, for no law officer, not even a justice of the peace, resides on its hallowed ground, yet the tax gatherer and publican finds his way to this lonely sea-encircled spot, and exacts the tribute due to Cæsar.



On my return to New Orleans it took me about a week to arrange my specimens, and dispose of them in such a way as to need no longer my attention; and as they occupied considerable space by their number, I left them, with my other collections, at Swarbrick & Co.'s, to be sent up to Baton Rouge at the first convenient opportunity. After having made the necessary arrangement, I started on Wednesday evening (fifteenth of August) on the regular Opelousas packet, and proceeded up the Mississippi river, down the Atchafalaya, and up the Cortableau bayou as far as the town of Washington, in the parish of St. Landry. The Atchafalaya takes its rise about eighteen miles beyond the mouth of Red river, and during low water receives its waters exclusively from that river and its own tributaries. It may therefore be considered as that branch of Red river which empties into the Gulf. When the Mississippi is high, it disgorges its overflowing tide into the Atchafalaya, which thus becomes one of its principal outlets. The back waters of the Mississippi river ascend the mouth of Red river, whose bed is sloping upward, but finding the opening of the Atchafalaya in their way with its downward sloping channel, they rush into it with great force, and swell its volume very rapidly, so that its lower banks scarcely ever escape from being inundated, unless protected by effective levees.

The land on the Atchafalaya, the west bank of which forms the boundary line of St. Landry, is composed of alluvial soil similar to that of the Mississippi river, with a clay foundation, producing fine corn and cotton, but being exposed to overflows, and being very heavy timbered, it is mostly settled by small planters, and the plantations are at some distance from the river. The Atchafalaya is broader and deeper than the Red river, and during low water its banks are in some places from forty to fifty feet high. It is navigable by steamboats throughout its whole length to the gulf. But in order to reach Washington, which might be called the inland seaport of Opelousas, it is necessary to ascend Bayou Cortableau, a navigable stream of considerable depth. Here alligators are swarming in great numbers. When they appear, swimming on the surface, the passengers amuse themselves by firing at them with pistols and rifles. But being effectually protected by their coat of mail, a few only are

hit at the tender point, and they generally escape the murderous aim of their assailants by diving into deep water, where no ball can reach them. When the water is low, a sand bank, about two miles beyond the mouth of the bayou, prevents the New Orleans packets from ascending any higher, and passengers and freight are transported in flatboats over the bars to a small steamboat constructed for that purpose, which travels along slowly a distance of forty-two miles, until Washington is reached, which is at the head of navigation, and whence passengers are conveyed in hacks to Opelousas, which is six miles distant.

The land on the banks of the Cortableau is mostly low willow and cypress swamp until within a few miles of Port Barre, where the Teche takes its rise, dividing off from the bayou. There the land becomes hilly, and is composed of the same sandy red loam which constitutes the red clay ridge in which the Teche has its bed, rising above high water mark, and not extending more than a quarter of a mile on either side. This red sandy clay, which at the outskirts of Opelousas is covered by the prairie soil, again crops out beyond Ville Platte, and extends a few miles beyond Chicotville, where the pine prairies and the pine woods begin. This kind of soil, where it does not wash, is quite fertile for a few years, and the timber trees near the water courses, composed of willow, oak, sycamore, locust, post oak, red oak and hickory, are quite heavy. The bitter weed (*Helinium tenuifolium*) grows here in the greatest abundance. Sometimes strips of this red loamy soil are covered by black prairie soil for a short distance, and then the red clay makes again its appearance on the surface. The pine prairie land is as productive as the other prairie soil, but this being the boundary line which the waters of the Gulf only reached at very high tide, the surface soil forms only a thin crust, and wears out in a few years. The pine woods, at the edge of the prairies, are intermixed with oak, which really constitutes the principal growth, but the lands are low, and during rainy weather they are covered with water, and the country becomes for miles one continuous swamp. Beyond the edge of the prairie, about a mile and a half to the right of the Alexandria road, the land is very poor, and on both sides of the road, which runs on an elevated ridge, there are seen a series of ravines, some of them from fifty to sixty feet deep.

During the summer months the prairies are destitute of flowers,

except in very low places, where the waters collect and are transformed into prairie lakes. The wire grass, which is in seed during the summer months, covers with its half-withered stems the whole surface of the prairie level. Cattle and other stock are scattered all over the open pasture grounds where the lands are not fenced in for cultivation. During the winter these prairies do not afford sufficient subsistence for a large number of cattle, as the grass dies out, and stock raisers are compelled to drive their stock during that season to the neighboring cane brakes. But if these prairies were planted or sown in the Texas musquit grass, which is evergreen, these lands would become invaluable as stock farms. The land on Bayou Boeuf is altogether different from the prairie soil and the red sandy loam soil. It is alluvial in its composition, and contains a considerable quantity of vegetable mold, but in some localities its loamy ingredients, being nearly destitute of sand, are so stiff and unyielding that, during a long continued drought, they bake, become hard and cloddy, so that the plow and harrow can only pulverize them with the greatest difficulty.

About six miles from Chicotville there is a quarry of bluish limestone, which was formerly worked, but is now abandoned. There are also mineral springs within ten miles of it. But as circumstances prevented me from visiting these localities, I can give no account of them, or the soil and vegetation in the vicinity, from personal observation. The land between Washington and Opelousas, as well as on the Courtableau, beyond its immediate banks, is of the same character as that on the banks of the Teche. It is a continuation of that ridge, and produces very heavy timber, such as oak, hickory, tuliptree, sycamore, locust and catalpa, all of great size. Cotton and corn grow here very luxuriantly, and the crops had as fine an appearance as in any part of the State I had visited. On the banks of the Courtableau, at the edge of the town of Washington, there is a chalybeate spring, which pours forth a large stream of water, and deposits the iron it contains in solution, which, on exposure to the air, becomes the insoluble yellow hydroxide of iron. I was also told that on digging wells here a deposit of iron is reached within fifty feet of the surface. Here I saw, for the first time, the fig tree which bears what is called the perpetual fig. This fruit is as large as a pomegranate, and quite sweet and agreeable to



the taste. It continues ripening up to frost. As the climate of Louisiana is almost everywhere favorable to the growth of this valuable fruit tree, it ought to be extensively planted. It should be set out where it is sheltered from the direct rays of the midday's sun. On the upper Atchafalaya, where it approaches Red river, the banks rise in many places to a considerable height, where the red sandy loam of the Teche becomes exposed; but when the banks are high on one side of the river, they are correspondingly low and swampy on the other, and are under water even during the dry season of summer.

Opelousas is perhaps the oldest town in the State. It was originally a military post, and has grown up from a few straggling houses to its present dimensions, which are quite respectable, considering that it has no railroad communication, and no navigable stream nearer than six miles. The private residences are old, and time has marked them with its smutty fingers. The courthouse, which ought to be a building of some note, in a parish of the intelligence and wealth of St. Landry, is a dilapidated concern, fit only to be torn down to construct a building of some taste and pretensions in its place.

Washington is a place newly built up, and exhibits much life and energy. It is of considerable commercial importance, for this is the connecting point between New Orleans and every part of the parish of St. Landry and a portion of the surrounding parishes.

#### PORT HUDSON AND CLINTON, EAST FELICIANA.

My botanical collections in St. Landry were extensive, not in the prairies, but in the pine woods, and that part of the parish where the red sandy loam prevails. Finding the prairies during summer an unfavorable field for botanizing, I did not extend my excursions to Calcasieu and other prairie regions, which must be visited in spring or early summer, in order to obtain specimens of their characteristic vegetation. I, therefore, determined to close up my botanical tour by stopping, on my way to Baton Rouge, at Port Hudson and Clinton, in East Feliciana.

Port Hudson, as a town, presents nothing that is attractive, except its fine view up the river, and its historical renown as one of the strongholds in the late war. The fortifications, which are nearly

intact, form a prominent feature of its surroundings, and if sodded would afford delightful walks around the place—which is susceptible of considerable improvement—especially after heavy rains, when the streets are muddy, and the sticky clay retards the progress of the weary traveler who lands on these steep and hilly banks, and has to climb up an almost perpendicular declivity. As the Mississippi was very low, the composition of its banks was exposed to the view almost to its very bed. The lowest formation, upon which the Mississippi waters rest, is a compact, adhesive, blackish clay, having a tinge of blue ; above this are layers of grayish and yellowish clay, rising to a considerable height. The Port Hudson soil, composed of a fine silt, is deposited above high water on these layers of yellowish loam. It is of a brownish color, friable to the touch, and yields fine corn and cotton, equal to the Mississippi alluvion. It extends about eleven miles on the Port Hudson and Clinton Railroad, where the pine first makes its appearance. The country between the Comite and Amite rivers presents, in East Feliciana, nearly the same agricultural and botanical features as it does between the same rivers in East Baton Rouge. While on the Port Hudson soil the Four-toothed Helenium is the prevailing weed, the Bitter-weed flourishes in great abundance in both parishes, in that part which is bounded by the two rivers, and which embraces an area of about twenty-two miles in length. The long-leaved pine is but rarely seen here, but scrub and pitch pine are everywhere intermingled with oak, beech, sweet gum and magnolia. In the immediate vicinity of Clinton, the Youpon (*Ilex cassine*) grows by the roadside, and is found here in clumps of impenetrable thickets.

With the exception of the bottom lands near Pretty Creek and the Comite, the highlands belong to the Orange sand formation, which is manifest from the characteristic encrinitic pebbles I picked up. In many localities the soil is composed of pure sand, which here has the real orange tint from which the formation derives its name. This sand is not entirely destitute of lime, for some of the fossil pebbles are not perfectly silicified, and still retain a portion of their carbonate of lime, which is friable and easily intermixes with the soil. The subsoil is composed of clay of the deepest ochereous red, which in some of the railroad cuts make up layers from ten to fifteen feet high, and which are so compact, that during the war, many a soldier cut his name in the clay to perpetuate his memory,



if not in columns of brass or marble, at least in banks of solid and enduring clay. These pine lands are cultivated to a considerable extent, and I was assured, that besides producing fair corn crops, they yield half a bale of cotton to the acre.

Clinton is a town of some size, regularly laid out and well built up. It has about fifteen hundred inhabitants. It contains a considerable number of neat private residences, besides the courthouse and the Masonic building, which are edifices of some pretensions.

The people of Clinton have, evidently, much public spirit, and they promise themselves a great deal, by way of improvement, whenever the long expected railroad extension from Baton Rouge is effected.

The flora of East Feliciana presents considerable interest. Many specimens have been found there, which thus far, have not been met with in any other part of the State. Here grows the Anise tree, (*Illicium Floridanum*,) with its beautiful crimson flowers and ever-green leaves. This small tree would form one of the finest ornamental shrubs in our gardens. On the Comite river, grows in a wild state, in the midst of the woods, the Jerusalem cherry, (*Solanum pseudo capsicum*,) a shrubby plant, much cultivated. It is not probable that it is indigenous, but must have escaped from the gardens, which are, however, a considerable distance from the locality where it grows wild.

#### CONCLUSION OF ITINERARY.

After I had completed the botanical survey of East Feliciana, it being only one week to the commencement of the session, I deemed it most prudent to return to Baton Rouge, to enable me to take proper care of the collections I had made, to arrange them, determine and classify them; a labor which requires much time, considerable patience and much research. On comparing the results of my various excursions, I found that my collections, without exhausting the materials of summer vegetation, were varied, rich and highly interesting. The sea coast plants, which could not be obtained at any other locality, are, by themselves, worth all the trouble I had taken, and the expense I had incurred.

## ECONOMICAL, ARTISTIC AND MEDICINAL USE OF PLANTS COLLECTED.

A report which is intended to be disseminated among the people of the State, should not only be a scientific contribution, pointing out all the striking points of interest, which relate to the particular science of which it treats, but it should contain information of practical value, which might be useful, not only to the farmer and mechanic, but to every person who does not live exclusively for himself, and endeavors to exert his faculties for the advancement of civilization, and the promotion of the happiness and well being of mankind.

I therefore consider it a matter of paramount importance to point out the practical uses of the plants already collected, and thereby show by irrefutable facts the practical bearing which botanical investigations have in all the pursuits of life, in the arts, mechanics, agriculture, medicine, and even the domestic affairs of the household. It also shows that nearly all the accumulated wealth of every country is derived from the vegetable kingdom, and that it is a subject well worthy of our study, and deserves our serious consideration.

### TREES, SHRUBS AND VINES.

The Large-flowered Magnolia (*Magnolia grandiflora*) is widely diffused in Louisiana. Its glossy evergreen leaves and its large odorous flowers render it unequalled as an ornamental tree. The fine magnolia groves of some plantations present great natural beauty, and these rural spots should never be desecrated by the axe of the woodman. Every planter has a sufficient quantity of land for cultivation without encroaching upon the clumps of magnolias, which ought to be preserved as pleasure grounds or parks. This tree grows in cool and shady places, where the soil is covered with mold, and in pine barren swamps enriched by decayed vegetation. Its bark was used by the Southern Indian in cases of intermittents. Its wood, remarkable for its whiteness, is too soft to be employed in architecture or in cabinet work.

The Tulip tree or the White poplar (*Liriodendron tulipifera*) has been met with in East Baton Rouge and St. Landry, and other parishes. It delights in deep loamy fertile soils, in rich bottoms along the rivers or borders of swamps. Its wood, though light, is

sufficiently compact to be used in cabinet work. It may be employed as a substitute for pine and cedar in the construction of the interior work of houses. When boards made of this tree are perfectly dry, they take paint well, and admit of a brilliant polish, and on this account it is stained in imitation of mahogany. It is also useful for bridges, as it unites lightness with strength and durability. The bark of this tree is strongly tonic and antiseptic. The aromatic principle seems to reside in the resinous part of the substance of the bark, and acts as an internal stimulant. The Indians employed it in the cure of intermittents. But its highest value is its beauty in a living state. Its angled and lobed leaves, and its large tulip-like orange flowers, its spreading and wide branched proportions, render it one of the finest forest trees that grow on this continent.

The Golden-fruited Orange tree (*Citrus aurantium*) grows on the coast below New Orleans. It is believed to have been originally a native of the warmer parts of Asia, but has long since been acclimated in the southern part of Louisiana. It is cultivated for profit, and the orange plantations of the lower coast are the most valuable cultivated lands in the State. I have no data to estimate the annual value of the orange crop of Louisiana. But if the sources of information were known, a compilation of statistics with regard to this important branch of agriculture in our State would be extremely interesting. The wood of the orange tree is hard, compact and flexible, slightly odoriferous, and susceptible of being polished. It is used to make dressing cases and other articles of fancy work, and the straight young shoots are manufactured into walking canes.

The Small Buckeye (*Aesculus Pavia*) is a low shrub about six or eight feet high. It is found almost everywhere in Louisiana in fertile soil. In this State the shrub is too small in size, and no particular use is made of the wood. We are told by Elliot, and such is the popular belief, that the bruised branches and powdered seeds have the property of stupefying fish. When the water of small ponds is impregnated with them, the fish rise to the surface almost lifeless and may readily be taken with the hand. He also tells us that the root is used as a substitute for soap in washing woolen clothes. Its fine clusters of red flowers, which appear in early spring, and the graceful arrangement of its symmetric leaves, recommend it as an ornamental shrub of the gardens.



The Pride of China or China tree (*Melia Azøderach*) is said to be a native of Persia, but is now naturalized in our climate. It grows in great luxuriance, and its dark green and profuse foliage renders it very valuable as a shade tree. It is, however, objected to by some persons, on account of its berries which it throws off continually, from the time they attain maturity to the period it begins to bloom again in the spring. Its wood is considered strong and durable, and has been employed in the manufacture of pulleys. The fleshy part of the berry yields a fixed oil, which has anthelmintic, narcotic and stimulant properties. The leaves are universally used in India for poultices, and both the flowers and seeds are stimulants. The berries have been pronounced as poisonous by Arabian physicians, but in this country they are eaten by children without injurious effects. The bark of the root, when green, has a bitter nauseous taste, yielding its active principle to boiling water, and may be employed as an emetic, and is considered an efficient vermifuge. In Persia an ointment is made for the cure of some cutaneous eruptions by mixing the leaves with lard. The nuts are often bored by monks and strung into beads. Hence its name "bead tree." "Pater nostri di San Domenico."

The Prickly Ash (*Zanthoxylum Carolinianum*) grows from twelve to fifteen feet high, and is found on the banks of small water courses. It branches out with a regular bushy head, at some distance from the ground; and when in bloom is crowned with a cluster of yellowish green flowers. The tree, when young, is armed with powerful prickles, which are angular and sharp at the point. The bark and capsule are of a hot and acrid taste, and when taken internally, act as a powerful stimulant. They are sometimes used to relieve the toothache, hence its name "toothache tree." They are also employed for curing intermittent fevers and rheumatism. The American Indians were acquainted with the medicinal properties of this tree. They extracted from the berries a salivating substance, and used the decoction of the plant to produce perspiration.

The Three-leaved Ptelea (*Ptelea trifolia*) is found in most shady places and on the borders of woods. I have met with it in this State in East Baton Rouge. It is of no particular use, but is worth cultivating as an ornamental shrub, both on account of its leaves, which are arranged in whorls of threes; and on account of the beauty of its fruit, which appears in clusters of greenish yellow flat winged seeds.

The American Holly (*Ilex opaca*) is a beautiful evergreen tree, sometimes growing to the height of from thirty to forty feet. It is widely diffused all over Louisiana, in shady places and on the edge of swamps, where the soil is cool and fertile. The wood is compact, heavy, of a fine texture, and susceptible of brilliant polish. It is principally used for inlaying mahogany furniture, and it is subjected to the turning lathe to make of it small druggists' boxes and small screws. When perfectly seasoned it is extremely hard and inflexible, on account of which it is well adapted for pullies of ships. The bark may be employed in making bird lime. Medicinally it is an emetic. The berries, if taken in sufficient quantities, excite vomiting.

The Yaupon (*Ilex Cassine*) is generally a low tangled shrub. It flourishes best in sandy soil. It has small evergreen leaves, clusters of greenish-white flowers in the spring, and bears red berries, resembling currants, which remain on the tree until new flowers make their appearance. It grows up, if properly trimmed, to a tree of small size, which is both elegant and ornamental, on account of its red fruit, intermixed with its glossy bright green leaves. The tangled, low and impenetrable thickets it forms in some localities, suggested the idea to me, that it would make a live hedge far superior to any now in use. It surpasses the Cherokee rose, which grows too high and covers too much ground with its spreading and rooting branches. It excels the Osage orange, because it branches from the base of the stem, and its growth being naturally stunted, it requires but little trimming. Besides, it is far more impenetrable and produces less shade than the leafy top of the Osage orange, and it flourishes in poor soil, of which sand makes the principal ingredient. If some enterprising planter would make some experiments with the yaupon as a hedge plant, he might confer a great benefit upon the planting communities of the prairie regions where wood for fencing purposes is not easily obtained. Its leaves are used as a tea, being almost equal, if properly prepared by roasting, to the Paraguay tea, which is derived from the leaves of a species of the holly, *Ilex Paraguariensis*.

The Poison Vine (*Rhus radicans*) rises to a great height by adhering to trees with its strong rooting fibres, which it throws out from its stem. The leaves are ternate entire, or lobed and toothed. It has greenish yellow flowers, and bears a fruit of greenish white

berries. The juice, when applied to the skin, frequently produces inflammation and vesication, and it is the popular belief that a volatile principle escapes from the plant which produces, in certain persons, when coming near it, a troublesome erysipeloid affection, particularly of the face. The leaves, among other substances, yield tannic acid, and a volatile alkaloid, on which, it is pretended, its poisonous properties depend. The leaves are stimulant and narcotic; they act as an acrid poison, and produce a stupefying effect upon the nervous system.

The Dwarf Sumac (*Rhus copallina*) is a low shrub from five to eight feet high, and grows very abundantly in Louisiana. It bears greenish flowers, and its fruit appears in clusters of red berries which are slightly acid to the taste; the leaves contain an abundance of tannic acid, and they are sometimes collected for tanning purposes.

The Flowering Locust (*Robinia pseudo-acacia*) occupies the first rank as an ornamental tree, on account of the beauty of its foliage, and its clusters of white flowers. It is but rarely met with in Louisiana in a wild state. Its leaves contain much nourishing matter, and have been used as a substitute for clover, as food for cattle; but it must be cultivated for this purpose. The roots are very sweet and afford an extract similar to liquorice. The flowers, when medicinally employed, have anti-spasmodic properties, and when distilled furnish an agreeable and refreshing syrup, which, if drank with water, quenches thirst. The timber of the flowering locust is esteemed by shipwrights for the upper and lower parts of the frame of vessels. It is considered as durable as live oak and red cedar, being lighter than the former, and stronger than the latter. On account of the hardness of the wood when seasoned, and its luster when polished, it is extensively employed in cabinet work. We are told that the American Indians make a declaration of love by presenting a branch of this tree in blossom to the object of their attachment.

The Canadian Judas Tree (*Cercis Canadensis*) is a handsome shrub or small tree. The flowers, which appear before the leaves, are of a light purple, and are acid to the taste. The wood is very hard, elegantly veined, or rather waved, with black, green and yellow spots. When seasoned it is susceptible of a beautiful polish. The bark and young branches are used to die wool of a nankin color.



The French Canadians use the flowers in salads and pickles. The flower buds and pods would undoubtedly be excellent as pickled preserves.

The native country of the Peach tree (*Amygdalis Persica*) is not known. It was introduced into this country by the first European settlers at the close of the sixteenth century. I have seen peach trees grow spontaneously in Louisiana in the midst of the woods, which had probably sprung up from stray kernels dropped by some huntsman. The peach tree is principally valued for its delicious fruit, and as Louisiana has a similar climate as that part of Asia, where it flourishes best, the peach attains its highest perfection in this State, both for size and flavor. Its wood is compact and of a roseate hue, and is susceptible of fine polish. It is little used in the arts. A color may be extracted from it called rose-pink. Its leaves yield, by distillation, a volatile oil of a yellow color, containing hydrocyanic acid. Its bark, blossoms and kernels also contain the same poisonous principle.

The Common Plum tree (*Prunus Communis*) was introduced from Europe at the earliest period of the colonial government. Its fruit is pleasantly acid to the taste, and is sought after as one of the early fruits of the season. The wood is hard, close, compact, beautifully veined, and is susceptible of fine polish. The texture is silky, and when washed with lime water its glossiness is heightened, which may be preserved by the application of varnish. It is much in demand for the manufacture of musical instruments.

The Wild Cherry tree (*Prunus Virginiana*) grows here to the size of a small tree. It is a fine ornamental tree when its spikes of white flowers are fully expanded. Its wood is of a dull light red tint, which deepens with age. It is compact, fine grained, and takes a brilliant polish. When chosen near the ramification of the trunk it rivals mahogany in beauty. It is often employed for making felloes of wheels. The taste of the bark, especially that of the roots, is aromatic and bitter. It is a useful tonic, and possesses in some degree narcotic and antispasmodic properties. Dr. Barton informs us that the leaves are poisonous to cattle. The fruit is employed to make a cordial by infusion in brandy, with the addition of sugar.

The Wild Orange tree (*Prunus Caroliniana*) is a beautiful ornamental tree, and I have only met with it in this State in a cultivated state, but it grows wild in North Carolina. Its wood is fine grained,

and of a roseate hue, but its scarcity has prevented its employment in the mechanic arts. Michaux tells us that a spirituous liquor may be obtained from the bark, and we are informed by Elliot that its leaves are very poisonous, destroying cattle that feed freely upon them.

The Pomegranate tree (*Punica Granatum*) is indigenous in Persia, Japan, and various parts of Asia, but has long since been naturalized in Louisiana. A syrup is made of its pulp, as well as the dried flowers, which is used as an astringent. The rind of the fruit has been employed as a substitute for galls in the manufacture of black ink. The natives of India make use of the bark of the root for the expulsion of the tape-worm, a property well known to Dioscorides. The fruit is pleasantly acid and quite agreeable to the taste. Its flowers are of a bright scarlet and of large size, and render the tree, when in bloom, quite ornamental.

The Flowery Dogwood (*Cornus Florida*) grows for the most part on the borders of swamps, and in rich soil, and is found in abundance in East Baton Rouge. It is the white four-leaved involucre, which contains a cluster of greenish blossoms, that constitutes the chief beauty of the tree when in flower. The wood is hard, compact, heavy and fine grained, is susceptible of brilliant polish, and may be substituted for numerous purposes to which box-wood is applied. It is used sometimes by farmers for harrow teeth and for hames of horse collars, but being liable to split, it should never be wrought till it is perfectly seasoned. The cogs of wheels are made of the young shoots, and the forked branches are converted into yokes, which are put on the necks of hogs to prevent them from breaking into inclosed fields. The bark may be substituted for galls in the manufacture of ink. From the bark of the more fibrous roots the Indians obtained a scarlet dye. An infusion of the flowers was used by them for the cure of intermittents. The bark of the stem, as well as the root, is employed as a tonic and astringent. It has occasionally been substituted for Peruvian bark in intermittent fevers, and has frequently been successful.

The Sorrel tree (*Oxydendrum Arboreum*) grows only to a small size, where it has been met with in this State. Its numerous spikes of urnlike white flowers, at the beginning of summer, render it somewhat an object of attraction. The wood is soft, of a pale rose color, and is unfit for use in the arts and for fuel. The leaves have a

pleasant, acid taste, and are frequently made use of by hunters to allay thirst; and they form in decoction a grateful and refrigerant drink in fevers.

The *Bignonia* like *Catalpa* (*Catalpa Bigonoides*) is found growing wild in the parish of St. Landry and other parishes. It is considered a fine shade tree, on account of its large leaves, and is planted for that purpose. Its flower clusters, which appear in the spring, are large and very showy. Its wood is remarkably light, of a very fine texture, and takes a brilliant polish. Its color is of a grayish white, and when properly seasoned is very durable. It is sometimes used for posts and rural fences, and is employed in cabinet making. If a portion of the bark of the *catalpa* be removed in the spring, a venomous and offensive odor is exhaled. The bark is considered as possessing tonic and antiseptic properties, and has been used as an antidote for snakebite. The flower and seed are extolled as being a sovereign remedy against asthma.

The *Sassafras* tree (*Sassafras Officinale*) is indigenous to, and grows almost everywhere in the United States. The wood of the young tree is white and tender; but in trees which exceed fifteen to twenty inches in diameter it is of a reddish cast, and of a more compact grain. It is, however, of little value as a timber tree, where strength is the object. But if the wood is stripped of its bark, it resists for a considerable period the progress of decay, and on this account is employed for posts and rails of rural fences. It is also sometimes used for joists and rafters in the construction of houses, and it is said to be secure from the attacks of insects, an advantage attributed to its odor. The wood imparts to wool a very durable orange color. Medicinally, the wood, bark and roots of the *sassafras* are held in esteem as a stimulant and sordific. It is used to improve the flavor of more efficient medicines, and to render them more cordial to the stomach. *Sassafras* pith abounds in mucilaginous matter, which readily dissolves in water. This mucilage is much employed as a soothing application in inflammation of the eyes, and forms a useful and agreeable drink in catarrhal and other diseases. The bark of the root yields a great quantity of essential oil. An agreeable beverage is formed with the aid of young shoots, and the root bark, known by the name of "root beer," which forms a salutary and cooling drink during the summer months.

The Red-fruited Mulberry (*Morus Rubra*) grows in East Baton Rouge and many other parts of the State. The perfect wood is fine grained, compact, though light. It is of a yellowish hue, approaching to lemon color. It possesses strength and solidity, and when properly seasoned is almost as durable as that of the flowering locust. It is employed in dockyards, in the construction of both the upper and lower frames of vessels, for knees and floor timbers. It is also used for posts and rural fences. The fruit is dark red, and has an agreeable flavor. It forms a refreshing and grateful drink, well adapted to febrile diseases. A syrup is made of their juice and used as a pleasant addition to gargles in inflammation of the throat. We are told by Du Pratz, in his history of Louisiana, that many of the Indian women wore cloaks made of the lint of the mulberry tree. They stripped the bark from the young mulberry shoots which rise from the roots. After having been dried in the sun, they beat it to make all the woody parts fall off, and then gave to the threads that remained a second beating, after which they bleached them by exposing them to the dew. When they were whitened they spun them to the coarseness of pack thread, and then wove them by stretching a cord on two stakes, fixed in the ground, and fastening double threads of bark to this cord to form the warp, they interwove the filling, and thus made themselves a species of cloak upon this very primitive loom.

The Black-fruited Mulberry (*Morus Nigra*) is supposed to be a native of Persia; but it is naturalized in the United States, as a valuable shade tree. Its flowers are dioecious, male and female flowers being on separate trees, very few trees bear any fruit. The wood is of little use except as fuel. The roots are considered as an active vermifuge.

The Osage Orange (*Maclura Aurantiaca*) is indigenous in Arkansas, Texas and Missouri. It is employed for hedges and live fences. The wood is of a bright yellow color, and is said to afford a yellow dye. It is solid, heavy and durable, uncommonly fine grained and elastic, and on account of this last property, it has been used for bows by all the tribes of Indians of the regions where it abounds. Hence its name of "Bow wood." It receives a beautiful polish of the brilliancy and appearance of satin wood. The bark yields a fine white fibre, which might be converted into thread and a beautiful woven tissue.



The Common Fig tree (*Ficus Carica*) is indigenous to Western Asia and the shores of the Mediterranean. In Louisiana the fig tree grows most luxuriantly, and produces fruit of the finest quality. The sapwood is extremely light and tender and of a white color, and is used for making whetting instruments, from its facility of receiving and retaining the emery and the oil, that are employed in sharpening smiths' tools. The heartwood, which is yellow, loses a great deal of its weight in drying, but by that process it acquires so much strength and elasticity, that the screws of wine presses are made of it. The charcoal has the valuable property of consuming very slowly. The leaves and bark abound in a milky acrid juice, which has been applied to the skin to raise blisters and destroy warts. Medicinally the fruit is considered nutritive and demulcent, and when roasted or boiled, it is sometimes used as a cataplasm applied to gum-boils. The fig tree is said to have the singular faculty of rendering raw meat tender, when hung beneath its shade.

The Cork-winged Elm (*Ulmus Alata*) is frequently met with in East Baton Rouge and elsewhere in this State. The wood is fine grained, more compact and heavy than that of the American elm. The heartwood is of a dull chocolate color, and always bears a great proportion to the sapwood. It is used for the naves of coach wheels, but it is not particularly appropriated to any other use.

The White Oak (*Quercus Alba*) attains under favorable circumstances a magnificent size. It is highly valued for its timber; its wood being extremely tough, durable, and elastic, is extensively employed in ship building. It is also split into thin strips for making cotton baskets and the bottoms of chairs. The bark has a rough, bitterish, astringent taste. Its medicinal properties depend on the tannin it contains.

The Black Oak (*Quercus Tinctoria*) is one of the finest trees of the oak family. Its bark is more bitter than that of any other species of this class, but it is less frequently used for tanning purposes on account of the red color it imparts to the leather. It contains a coloring principle called quercitrine, which is capable of being extracted by boiling water, and is used to die wool and silk of a brownish yellow color. Medicinally considered oak bark is astringent and tonic. Its decoction is used as a bath when the stomach is so much disordered as to refuse to receive medicines. It is also employed as a poultice in gangrene and mortification.

The Live Oak (*Quercus Virens*) is a beautiful tree which grows most abundantly in the lowlands of the southern and gulf regions of Louisiana. On account of the dark green color of its evergreen leaves it is perhaps the finest shade tree the vegetable kingdom can boast of. This oak freed from the outer wood and thoroughly seasoned will endure an unknown period of time in buildings or machines. Its wood, being most elastic and durable, is superior to every other forest tree, and is particularly sought after by ship-builders. Its timber forms a valuable commercial commodity, equaled only by the teak of India.

The Long-leaved Pine (*Pinus Australis*) is a lofty and majestic tree indigenous in this State. It grows in dry, sandy soils, and is found in the pine lands in Rapides, Tangipahoa, and other parishes. Its timber is valuable not only as fuel, but as lumber in domestic architecture and ship-building. It yields an abundance of turpentine, and the Carolina pine supplies a sufficient quantity of that article, not only for home consumption, but also for exportation.

The Cypress (*Taxodium distichum*) is one of the most valuable timber trees indigenous in the Southern States. It grows in great abundance everywhere in the swamps of Louisiana. Its beautiful foliage and its lofty and elegant form would recommend it as one of the finest ornamental trees if it grew in any other but swampy soil. Its wood is extremely porous and light, and when properly seasoned is most durable. On this account it is employed in naval as well as civil architecture.

The Sweet gum (*Liquid amber styraciflua*) is very abundant everywhere in the lowlands of Louisiana. When wounded, a balsamic juice flows from its trunk, which is of the consistence of honey, is of a yellowish white color, and has a balsamic odor. It has been erroneously called liquid storax, which it resembles in its properties. It is sometimes chewed by children, in order to sweeten their breath. The bark is astringent, and has been employed in the form of a syrup. The timber is valuable as fuel, and is also used for lumber where pine and cypress are scarce.

The Black Walnut (*Juglans nigra*) is met with in Louisiana in rich soil. Its wood, though neither strong nor compact, is extensively used in cabinet work, on account of its durability and the high polish it takes, and its exemption from the attacks of insects. The kernel of the fruit furnishes a grateful article of food. The bark is

used for dyeing wool a dark brown color. The decoction of the bark and leaves has considerable medicinal properties.

The Hickory (*Carya glabra*) is one of the finest forest trees of the Southern States, and grows only in rich soil. The wood of the hickory is well known for its compactness, its toughness and durability. It is much employed for posts, and as heat-producing fuel it can not be surpassed. The infusion and tincture of the bark have been used as astringents, and have been administered in intermittents with success. Chewing the inner bark has been said to be a sovereign remedy for dyspepsia. The nut furnishes an agreeable article of food.

The Black Willow (*Salix nigra*) grows everywhere in the State on the banks of streams. Its wood, when exposed to constant atmospheric changes, speedily decays, but when thoroughly seasoned and kept perfectly dry, will last for centuries. It has not been used in the arts, except for making charcoal. The young shoots were employed by the Indians for the manufacture of baskets and other wickerwork. The root has tonic properties, and is used by country people for the prevention and cure of intermittents.

The Rose-bay tree (*Nerium oleander*) with its bunches of rose flowers is one of the finest ornamental shrubs that grows in the gardens of Louisiana. The powdered bark is said to be poisonous, and the peasants of the south of France, where it grows wild, employ it as a poison for rats, and death is said to have occurred from eating food roasted by the oleander wood. The leaves, boiled in lard or oil, yield an ointment which is considered efficacious against insects.

The American Beech (*Fagus ferruginea*) is a handsome tree, and grows most abundantly in low wet soil, near the rivers and bayous. Its nuts afford nutritious mast for hogs, but it has little value as a timber tree, on account of the hardness and brittleness of the wood.

The Fragrant Olive (*Olea fragrans*) is cultivated in the gardens on account of the delicious odor of its yellowish flowers. The odor of tea leaves, cultivated in China, is improved by mixing with them the flowers of this tree, which are afterwards separated by sifting or otherwise.

The Mistletoe (*Phoradendron flavescens*) is a parasitic shrub which grows on the oak, the elm, the sweet gum and other trees. The berries are white and are said to be poisonous. They contain a



glutinous sticky material, which surrounds the seed, and which in Europe is used in the preparation of bird-lime. The plant was considered sacred by the Druids of Britain. They looked upon the oak as the residence of the Almighty. The fruit of the mistletoe, a parasite of the oak, was thought to contain divine virtue, and to be the peculiar gift of heaven. It was sought for on the sixth day of the moon with the greatest earnestness and anxiety, and when found it was hailed with rapture and joy. As soon as the discovery was made, the arch druid, attended by a crowd of people, ascended the tree, dressed in a white robe, and, with a consecrated knife, cropped the mistletoe from its fixed support. Having secured the sacred plant, he descended the tree; bulls were sacrificed, and the deity was invoked to bless his own gift and render it efficacious in those diseases in which it should be administered. They esteemed it a kind of panacea, a universal remedy in all diseases.

The Common Lilac (*Syringa vulgaris*), is a shrub cultivated in the gardens. Its leaves and fruit have a bitter and acid taste, and have been used as a tonic and febrifuge. In some parts of France they are employed by country people in intermittent fevers.

The Canada Elder (*Sambucus Canadensis*) is a well known shrub and grows every where in the United States. The flowers are gently excitant and sudorific, but are used only in the form of poultices, fomentation and ointment. The berries have diaphoretic properties, and have been employed in rheumatic and eruptive affections. The inner bark is used in dropsical complaints.

The Virginia Creeper (*Ampelosis quinquefolia*) is a running vine which attaches itself by its rootlets to trees and walls. In autumn its leaves turn bright crimson, and they have been used as an alterative tonic and expectorant. The bark and twigs have been recently recommended as a remedy in dropsy.

The Arbor Vitæ (*Thuja occidentalis*) is a beautiful ornamental tree, indigenous in North Carolina, and is cultivated in all the gardens in the United States. The leaves or small twigs have an agreeable balsamic odor, especially when rubbed, and a strong camphorous bitter taste. They have been used in the form of decoction in intermittent fever, and also in scurvy and rheumatism. A volatile oil, obtained by distillation from the leaves, has been successfully employed as a vermifuge.



The Partridge Berry (*Mitchella repens*) is a small evergreen, trailing shrub, with whitish, fragrant flowers, and a scarlet edible fruit. The whole plant has medical properties, and is said to be employed by Indian squaws to facilitate parturition. It is tonic and astringent.

The Yellow Jessamine (*Gelsemium sempervirens*) is one of the most beautiful climbing shrubs of the Southern States. It ascends lofty trees, and forms leafy bowers, extending from one tree to the other; and, in its flowering season, in February and March, it perfumes the atmosphere with its delicious odor. The leaves are perennial, and the flowers are large, tubular, and of a bright yellow color, and are said to be poisonous. The root is medicinally used. Its medical virtue has been accidentally discovered by a Mississippi planter, who, being affected by a febrile disease, ordered his servant to dig up a certain kind of root in his garden, and to prepare a tea from it. The servant dug up, by mistake, the root of the yellow jessamine. He boiled it into a tea, and administered it to the patient, who was soon afterwards affected with nausea and muscular debility, but these effects gradually subsided, and with them the fever. Since that time the root has been employed in intermittent, remittent, typhoid and yellow fever, in inflammation of the lungs, and other diseases.

#### HERBACEOUS PLANTS.

##### MEDICINAL, ORNAMENTAL AND ECONOMICAL.

The Butterfly weed (*Asclepias tuberosa*) does not, like the other species of *asclepias*, emit a milky juice when wounded. Its root, which is perennial, is irregularly tuberous, branching, and has an acrid, nauseous taste. Medicinally it is diaphoretic and expectorant. It has been administered in pleurisy and pneumonia, and may be taken in powder, infusion, and decoction.

The Long moss, (*Tillandsia usneoides*), which is not a moss as its name imports, but bears a regular, small, greenish flower, and belongs to the order of flower-bearing plants. It has been considered for ages as useless, giving to the forest where it abounds a funereal aspect. It has recently become an important article of commerce, as a substitute for horsehair in the manufacture of mattresses. After the outer covering of the flexible stem has been rotted off by exposure in the open air, there remains a black hairlike bundle of fibres,

which has all the strength and elasticity of horsehair without its animal odor. It is afterwards hackled like flax, pressed in bales, and sent to New York, the great emporium of the commercial commodities of this continent. It is exclusively a natural production of the Southern States, and its growth ought to be fostered and its collection regulated by law. It is an air plant, draws its nourishment from the atmosphere, and neither exhausts the soil nor injures the trees to which it attaches itself.

The Indian fig prickly-pear (*Opuntia ficus Indica*) has been found on the Têche near Franklin, St. Mary parish, but it grows in great abundance in the sandy soil north of Lake Pontchartrain. Near Mandeville and Covington it covers a considerable extent of ground, and reaches the height of from four to five feet. It bears a large yellow flower, and produces a pear-shaped reddish fruit, which contains a slightly acid but extremely pleasant juice, having the appearance of red wine, and stains the fingers with its carmine dye. Were it not for its numerous impalpable stings with which it is armed, and which render its fruit somewhat forbidden fruit, its scarlet red juice might probably be converted into a delicious beverage, equal perhaps to some of those artificial wines manufactured in Cincinnati and elsewhere, and sold in the South as genuine champagne. Nor is it impossible that its coloring principle might be of some value, if means can be found by which it can be fixed.

The Worm-seed or Jerusalem oak (*Cheopodium anthelminticum*) grows every where in waste places in Louisiana. It has been introduced from tropical America. It has a strong peculiar, offensive and yet somewhat aromatic odor, which it retains when dried. All parts have medicinal properties, but the fruit is considered the most efficacious. It is a favorite vermifuge, and is most conveniently administered in powder mixed with syrup.

The Golden-flowered Star-grass (*Aletris aurea*) grows in the pine barrens. The bitter principle of the root of this plant is extracted by alcohol; and having strong tonic properties, it is advantageously taken as bitters in febrile debility.

The Balsam apple (*Momordica balsamina*) an herbaceous vine cultivated in the gardens, is a native of the East Indies. Its fruit, which is of graceful form and of a beautiful orange yellow tint, was formerly highly esteemed as an application to wounds, and is still in use for that purpose among country people. Infusing the fruit,

deprived of its seed, in olive oil, it forms a liniment which is applied to chapped hands, burns, old sores, and the mashed fruit is employed as a poultice.

The fruit of the Pumpkin vine (*Cucurbita pepo*) is well known to farmers as excellent food for cattle. Its seed has of late acquired considerable reputation for the expulsion of the tapeworm, for which it is administered in the form of a paste in the quantity of an ounce and a half of the seed, mixed with an equal weight of sugar.

The Flowering Spurge (*Euphorbia corollata*) is very common in the sandy pine lands of Louisiana. The root alone possesses some medicinal value. Its active principle is taken up by water and alcohol, and remains in the extract obtained by the evaporation of the decoction or tincture. In a full dose it is a certain emetic. In smaller doses it is diaphoretic and expectorant.

The American Centaury (*Sabbatia angularis*) grows most abundantly in the pine woods and in sandy soil. Its numerous rose colored flowers, which expand late in June, render it a beautiful ornamental plant, and it deserves a place in the gardens. All parts of the plant have a strong bitter taste. Alcohol and water extract its bitterness. It has tonic properties similar to gentian, and has been popularly employed as a preventive remedy in our autumnal remittent and intermittent fevers.

The Sweet flag or Florentine orris (*Iris Florentina*) which is cultivated and constitutes quite an ornament in our gardens, is a native of Italy. The root, which is known in commerce by the name of orris root, has not only medicinal properties as an emetic, but is valued on account of its agreeable odor. It is occasionally used to conceal an offensive breath, and it enters into the composition of tooth powders.

The Common White Lily (*Lilium candidum*) is a beautiful ornamental garden flower, and is indigenous in Syria and Asia Minor. The bulb, which consists of imbricated fleshy scales, has a peculiar, disagreeable, somewhat mucilaginous taste. In a recent state it is said to have been successfully employed in dropsy. Boiled with water or milk, it forms a good emollient cataplasm, much used in popular practice. The flowers impart their odor to oil or lard, and an ointment or liniment prepared from them is used as a soothing application in external inflammation.



The Wild Onion (*Allium Canadense*) has been found nowhere else except in West Baton Rouge. The medicinal effect of the bulb of the wild onion is stimulant. It may be used in catarrhal affections of children, and in nervous and spasmodic coughs, in the form of a syrup. When bruised and applied to the feet, it is useful in febrile complaints of children, by quieting restlessness and producing sleep.

The Cardinal Flower (*Lobelia cardinalis*) grows everywhere in Louisiana, in low marshy lands. Its showy crimson flowers render it well worthy of cultivation as a garden plant, far more attractive than some of the worthless exotics that fill the greenhouses. Its root is supposed to possess anthelmintic properties.

The Sheep Sorrel (*Oxalis stricta*), with its delicate yellow flowers, is very widely diffused in the United States. It has an agreeable, sour taste, which is due to oxalic acid, combined with potash, which it contains. It is a refrigerant, and an infusion or whey made by boiling it in milk, is a pleasant drink in febrile and inflammatory affections.

The Purslane (*Portulacca oleracea*) is a succulent plant, with small yellow flowers, and grows in cultivated grounds. It has an herbaceous, slightly saline taste, and is often used as greens, being boiled with meat or other vegetables.

The Yellow Dock (*Rumex crispus*) is a naturalized plant, originally derived from Europe. Its root is used medicinally. It is astringent, gently tonic, and is supposed to possess alterative properties, which render it useful in scorbutic disorders and cutaneous eruptions, particularly the itch. The powdered root is recommended as a tooth powder, especially where the gums are spongy.

The leaves of the Water pepper (*Polygonum hydropiperoides*) and of the Smart weed (*Polygonum acre*) have a sharp and biting taste, and are used as applications to ulcers, and are applied to the gums in mercurial salivation.

The Pokeweed (*Phytolacca decandra*) grows not only in waste places around fences, and in cultivated ground, but in the depth of the woods in the marsh lands in St. Mary's parish, where it reaches the height of from ten to fifteen feet. The young shoots are often used in early spring, and boiled in the manner of spinach. The berries contain a succulent pulp, and yield upon pressure a large quantity of a fine purplish red juice. They have a sweetish, nauseous, slightly acrid taste. The coloring principle is evanescent,



and cannot be applied to useful purposes in dying, from the difficulty of fixing it. The taste of the dried root is slightly sweetish but is followed by a sense of acrimony. Its medicinal properties are emetic and somewhat narcotic. In small doses it is an alterative, and has been recommended in the treatment of chronic rheumatism. An ointment, prepared by mixing the roots or leaves with lard, has been used to advantage in some cutaneous diseases.

The Celery Crowfoot (*Ranunculus sceleratus*) is a naturalized plant, indigenous in Europe. It is pervaded by a volatile acid principle, which is dissipated by drying or by heat, and may be separated by distillation. The property for which it has attracted the attention of physicians is that of inflaming and vesicating the skin. It is a powerful rubefacient, far more efficacious than mustard.

The Virgin's Bower (*Clematis Virginiana*), the Leather Flower (*Clematis Viorna*), and the Crisp-flowered Clematis (*Clematis crispa*) are all ornamental vines, and well deserve a place in our gardens. The leaves and flowers have medicinal properties. They are useful as applications in cancerous and other foul ulcers, and in severe headaches.

The Dewberry (*Rubus trivialis*) and the high Blackberry (*Rubus villosus*) bear both very agreeable acid fruit, and are so abundant every where in Louisiana, that no one thinks of cultivating them. Their berries are much used as food, and a jelly made from them is in great esteem as an article of diet. Their root has tonic properties. Given in decoction, it is acceptable to the stomach, without being offensive to the taste, and it may be used advantageously in all cases where a vegetable astringent is of service, especially in children's complaints.

The Jersey tea (*Ceanothus Americanus*) is found every where in the United States. The root of this plant is astringent, and imparts a red color to water. The leaves were used during the revolutionary war as a substitute for tea, hence its name. A strong infusion of the dried seed and leaves is recommended as a local application to ulcers of the mouth and in sore throat of scarlet fever.

The Figwort (*Scrophularia nodosa*) is indigenous in Louisiana. The leaves have a bitter, somewhat acrid taste. They are said to be anodyne, and are sometimes employed in the form of ointment

or of fomentation to painful tumors and ulcers and cutaneous eruptions.

The Mullein (*Verbascum thapsus*) is rather an unsightly plant, and is somewhat rare in Louisiana. I have only met with it near Ville Platte, in St. Landry parish, and seems to be introduced. The leaves and flowers have a narcotic smell, which, in the dried flowers, becomes agreeable. Their taste is mucilaginous, herbaceous and bitterish. They are emollient, and are said to possess anodyne properties, which renders them useful in chronic diseases. They impart their virtue to water by infusion.

The three-leaved Nightshade (*Trillium sessile*) is a pretty little herbaceous plant, and grows in the swamp lands of the Amite river. The roots are reputed to possess valuable remedial properties. They are employed by the Indians, and have been used by the country people. They are astringent and tonic.

The Common Nettle (*Urtica dioica*) is a well known plant, growing by the roadside and at the edge of gardens. This species of nettle produces, upon the slightest touch, a burning pain in the fingers, which continues for some time. Its irritant effect is said to be owing to the presence of free formic acid in the sharp and tubular hairs. The young shoots are boiled and eaten by some people as a remedy in scurvy, and the fresh plant is sometimes used to excite external vesication in cases of torpid and local palsey.

The Vervain (*Verbena officinalis*) grows most abundantly in every part of the State, near towns and cultivated fields. It has long spikes of small blue flowers, and blossoms from the beginning of summer till late in autumn. It was highly esteemed by the ancients both as a medicine and as a sacred plant employed in certain religious rites. In modern times superstitious notions in relation to its virtues are still entertained, and the suspension of the root around the neck by means of a white ribbon has been gravely recommended for the cure of scrofula. The leaves when bruised and made into a cataplasm, are used by country people as a remedy in severe headache and other local pains. Its real medicinal virtues are somewhat doubtful.

The Water Cress (*Nasturtium officinale*) has a fleshy stem, and grows in springs, rivulets and ponds. When fresh it has a quick, penetrating odor, especially when rubbed, and a bitterish, pungent taste. It is used in spring as a salad, and employed sometimes in scurvy.

The wild Pepper-Grass (*Lepidium Virginicum*) is a little plant which is widely diffused all over the United States. Its leaves, when chewed, have a pungent taste, and are much used by poor people as a salad in spring when other vegetables are scarce.

The Shepherd's Purse (*Capsellia bursa-pastoris*) is a species of the mustard family, and grows everywhere in this country. It yields a volatile oil, which may be obtained by distillation. The plant is bitter and pungent, and is supposed to possess astringent properties, and on this account it is employed in hemorrhages. The fresh herb when bruised is used as a topical remedy in rheumatism.

The Hedge Mustard (*Sisymbrium officinale*) grows along fences and walls. It has an herbaceous and acid taste, which is strongest in the tops of the flower-spikes and resembles that of mustard, but is much weaker. The seeds have considerable pungency. The herb has been recommended in chronic coughs and hoarseness, and ulceration of the mouth and throat.

The American Senna (*Cassia Marylandica*) is common in all parts of the United States. The leaves alone have medicinal properties. They have a feeble odor and a nauseous taste, analogous to that of senna. American senna is an efficient medicine, closely resembling the imported senna in its action, and capable of being substituted for it in all cases in which the latter is employed.

The Pepper mint (*Mentha piperita*) is a native of Great Britain, from whence it has been introduced into this country. It grows wild near Clinton, in East Feliciana. It has a peculiar, penetrating, grateful odor. The taste is aromatic, warm, pungent, glowing, camphorous, bitterish, and is attended with a sensation of coolness when the air is admitted into the mouth. These properties depend on the volatile oil which abounds in the herb, and may be separated by distillation with water. It is a grateful aromatic stimulant. It is used to allay nausea and relieve spasmodic pains.

The Horse mint (*Monarda punctata*) grows in light sandy soil all over Louisiana. The whole herb has medicinal properties; it has an aromatic odor and a very pungent, bitterish taste, and abounds in volatile oil, which may be separated by distillation. Its medical properties are stimulant.

The Common Nightshade (*Solanum nigrum*) is an herbaceous, mean looking plant, very widely diffused. The leaves alone are employed as a medicine. They have been used in cancerous, scrofu-



lous and scorbutic diseases, being given internally, and applied at the same time to the parts affected in the form of poultice, ointment and decoction. Neither the berries nor the leaves are believed to be poisonous.

The Jerusalem Cherry (*Solanum pseudo-capsicum*) is a shrubby plant, bearing a red cherry-like fruit. I found it growing wild in East Feliciana. It is an ornamental plant, and is cultivated in the gardens on account of its bright green leaves and its red berries, which are said to be poisonous.

The Plantain (*Plantago major*) grows in fields, roadsides and grass plots. The leaves are saline, bitterish and austere to the taste. The root is saline and sweetish. The plant has been considered refrigerant and astringent. The ancients esteemed it highly, and used it in diseases where astringents are properly employed. The root is said to have been useful in intermittents. Among country people it is used as a dressing for blisters and sores.

The Thorn Apple (*Datura stramonium*) is supposed not to be indigenous in this country, but to have originated in South America or Asia. All over the United States the plant is generally known by the name of Jamestown Weed, a name derived, probably, from its having been first observed in the neighborhood of that old settlement in Virginia; and it is even a traditional story that the followers of John Smith had actually cooked it as greens, and had experienced its poisonous properties by eating of it. The leaves, as well as the seed, are considered medicinal. It produces powerful narcotic properties. It has been administered with good effect in mania and epilepsy. It has also been found beneficial in neuralgia and rheumatic affections. It has acquired well deserved reputation in asthma. Smoking the leaves or seed during the paroxysm greatly alleviates, and often subverts it.

Fennel (*Foeniculum vulgare*), which, on account of its smell, its clusters of yellow flowers, is somewhat an ornamental plant in the gardens, has an aromatic odor and taste, dependent on a volatile oil by which it is pervaded, and which may be separated by distillation. Fennel seed was used by the ancients. It is one of the most grateful aromatics, and is employed to disguise the taste of other less pleasant medicines.

The Water Hemlock (*Cicuta maculata*) grows in wet grass lands

and on borders of streams, to the height of from four to five feet. Its roots are very poisonous, and it has been recommended as a specific in nervous and sick headaches.

Boneset (*Eupatorium perfoliatum*) is a plant which is easily recognized by its small bushy white flowers, and by the long narrow leaves, which may be considered as being perforated by the stem. It abounds in moist and wet places. It flowers from the middle of August to the last of October. All parts of it have active properties. It is a tonic and diaphoretic. In large doses it is emetic. It is said to have been employed by the Indians in intermittent fevers, but its efficacy in that disease is doubtful.

The Yarrow (*Achillea millefolia*) is a perennial herb common to the old and the new continent. Both flowers and leaves have an agreeable though feeble aromatic odor, and a bitter, astringent and pungent taste. The aromatic property is strongest in the flowers, and the bitter principle in the leaf. It owes its virtues to a volatile oil, which may be obtained by distillation. Its medical properties are tonic, aromatic and astringent.

The May weed (*Maruta cotula*) grows abundantly in and around the town of Baton Rouge. It is undoubtedly introduced. Its flowers consist of a golden yellow disk and white radial florets. It is frequently called wild chamomile. The whole plant has a strong disagreeable smell and a warm bitter taste, and imparts its active principle to water. It may be substituted for chamomile, for its medical properties are the same. It has been given in nervous diseases, especially hysteria.

Canada Fleabane (*Erigeron Canadensis*) is a common weed which grows from two to six feet high. The leaves and flowers are said to possess peculiar virtue. It has an agreeable odor, and a bitterish acrid somewhat astringent taste. Both alcohol and water extract its virtues. It appears to be tonic and astringent, and has proved useful in dropsical and other complaints.

The Sweet scented Golden rod (*Solidago odora*) grows in the woods and fields in Louisiana. The leaves have a fragrant odor, and a warm, aromatic, agreeable taste. It is aromatic, and moderately stimulant and diaphoretic when given in warm infusion.

The Sunflower (*Helianthus annuus*) is considered, on account of the large size of its flowers, as an ornamental plant of the gardens.

It is a native of South America. The pith contains nitre, and is employed as a moxa in the cauterization of the skin by fire.

The Burdock (*Lappa major*) grows most luxuriantly in and around Baton Rouge, and a stranger might think it is cultivated on account of its medical properties. But its actual virtues are too insignificant to deserve much attention. The root has a weak mucilaginous and sweetish taste, and a slight degree of bitterness and astringency. It has been recommended in scorbutic, scrofula and rheumatic affections.

The Pinkroot (*Spigelia Marylandica*) is found in rich soil and on the borders of woods. The root, which is medicinally employed, consists of slender branching fibres, attached to a knotty head. It has a faint, peculiar smell, and a sweetish, slightly bitter, not very disagreeable taste. Its virtues are extracted by boiling water. It is considered as one of the most powerful anthelmintics. The Cherokee Indians were well acquainted with the vermifuge property of *Spigelia*, and the use of it, for that purpose, has been adopted from them.

#### HORTICULTURAL AND AGRICULTURAL PLANTS.

The native country of the Garden Lettuce (*Lactuca sativa*) is unknown. It has been cultivated from time immemorial. It is used as a salad, and when properly dressed, forms one of the most pleasant condiments. It abounds in a milky juice, which, during the flowering season, escapes readily by incision in the stem, and yields the lactucarium of commerce. It was well known to the ancients that lettuce possessed soporific properties. A tincture of lactucarium produces the anodyne effects of opium, without being followed by the same injurious effects. It is especially employed to allay cough and quiet nervous irritation.

The Tomato (*Lycopersicum esculentum*) is a well known vegetable served up at our table. It grows most luxuriantly in the gardens of this State, and bears fruit until the frost kills the vine. It is of a bright red color, and on this account has been called the love apple. The fruit has a peculiar acid taste, and is highly nutritive. It is said to possess anti-bilious properties.

Cayenne Pepper (*Capsicum annuum*) is a native of the East Indies and tropical America, and is extensively produced in this country, both for culinary and medicinal purposes. It is a powerful stimu-



lant, producing, when swallowed, a sense of heat in the stomach and a general glow over the body without narcotic effects. It is much employed as a condiment, and proves useful in aiding digestion. In India it has been used from time immemorial, and from a passage in Pliny it appears that it has been known to the Romans. As a medicine, it is useful in cases of enfeebled and languid stomach, and is occasionally prescribed in dyspepsia. Applied externally, it is an excellent rubefacient in local rheumatism. It acts speedily without producing vesication.

The Ground Nut (*Arachis hypogæa*) is indigenous in Africa and South America. It is cultivated on a large scale near Wilmington, North Carolina. A remarkable property of the peanut is that its pods penetrate the soil in the progress of their growth, and that the fruit ripens under the surface of the ground. The seeds constitute the well known ground nuts in our markets. These when roasted form an agreeable article of food. A fixed oil is expressed from them which is used for lubricating purposes, and which renders it a valuable article of commerce.

The Bean (*Phaseolus lunatus* and *P. nanus*) is cultivated in the garden as well as in the field for the use of its large nutritious seed. The bean is mentioned in all the ancient classical works in which reference to agriculture is made. It was esteemed more than any other kind of leguminous vegetable, both by the ancient Greeks and early Romans. The Athenians used sodden beans in their religious festivals in honor of Apollo, and the Romans presented beans as a sacrificial offering in honor of Carna the wife of Janus. In Egypt it appears to have been regarded as typical of some of the mysteries which the priests endeavored to conceal from the knowledge of the uninitiated, and it was therefore shunned by them as too sacred for ordinary observation. Pythagoras, who studied philosophy on the banks of the Nile, and lived exclusively on vegetable food, forbade the use of the bean. Beans were employed by the Romans in taking the vote of the people and they used them in the election of magistrates. The meal or flour made of them was thought to possess the property of removing wrinkles and giving a fair complexion to the skin.

The bean is indigenous in Egypt, Barbary and Morocco. The lima bean and the string bean are the principal varieties cultivated. A rich, strong loam is best for their successful cultivation, and if

properly prepared, will produce a crop of fifty or even a hundred per cent. The penetrating, ramifying, fibrous root of this vegetable cleaves and subdivides the stiff soil, so as to draw down a free circulation of the air, and to dry, pulverize and mellow the loamy earth. Its large leaves absorb a great quantity of nourishment, in the form of atmospheric gases, and by their fall communicate the elements collected to the soil. A crop of beans is the most proper means for improving wet and heavy land; while eliminating nearly as much nutritious matter for the use of animals as a crop of wheat, it produces a far less exhausting effect upon the soil, and upon heavy land it excels every other crop in making a remunerating return for manure. They are better suited for feeding horses and are more nutritious than oats. When thus used, they ought to be split or bruised in a mill and given in a mixture with cut hay or straw. They are also much employed in England for the fattening of hogs, but they have a tendency to render pork firm, and not sufficiently delicate, and at the last stage of fattening they are superseded by barley meal. Bean meal is well adapted to fatten oxen; and mixed with the drink of cows it very materially increases the yield of milk. Wheat flour is often adulterated by bean meal.

Cabbage (*Brassica oleracea*) has been generally and very early cultivated by the ancient Greeks and Romans. The Greeks held it in great esteem, and are said to have expatriated their physicians; and simply by the use of cabbage have preserved their health for six hundred years. Both Greek and Romans ate the raw leaf as a preventive of intoxication, and as alleviating its effects. Pliny, speaking of the spring shoots, says: "I dwell long on this vegetable, because it is in so great repute in the kitchen and among our riotous gluttons."

The most suitable soil for cabbage is a sound mellow loam, of the peculiar quality and texture designated as fat or unctuous, containing sand in very large proportion in minute division, combined with a considerable quantity of aluminous earth. When cabbage is fed to milch cows, all the unsound leaves should be carefully stripped off. This vegetable more than any other plant contains nitrogenous materials, suitable for the nourishment of man, and is on this account a good substitute for meat.

The Turnip (*Brassica rapa*) is a biennial and has two seasons of growth, one in which it develops its leaves directly from the root

crown, and another in which it sends up a long flower stem with leaves entirely different from those of the first season, and then goes through the process of flowering and seeding. The turnip has been introduced from Europe by the early settlers.

The Sweet clover (*Melilotus officinalis*) is indigenous in Europe, and has been introduced into this country. The flower has a peculiar sweet odor, which by drying becomes stronger and more agreeable. Its taste is slightly bitterish. It is tender and succulent when young, but becomes hard and woody in the stem, and is then only fit to be eaten in the tops and leaves, when in full flower. It is greedily eaten in its young and tender state by all kinds of live stock, and when dried into hay has a fragrant odor. On account of its flavor it is used in making the famous Gruyere cheese. In medicine it is employed in the form of cataplasm applied to slight inflammation.

The Red clover (*Trifolium pratense*), besides the excellent grazing it affords to cattle and horses, covers the ground with its broad foliage so as to smother useless annual weeds. It enriches the soil by the fixation of gases, and by the profuse ramifications of its roots it acts with the power of a fallow, and makes both a mechanical and chemical preparation for a beautiful and luxuriant cereal crop. It flourishes best in limestone soil. There are biennial and perennial varieties.

The White Clover (*Trifolium repens*) is an indigenous perennial. It grows wild, and possesses such extraordinary vitality as to spring up spontaneously in great profusion in places where it could not have previously vegetated for centuries. Its roots are fibrous, its stems are stoloniferous and creep along the ground, striking root as soon as they touch it.

The Procumbent Hop (*Trifolium procumbens*) has yellow flowers, and grows wild in East Baton Rouge. It is probably introduced. It is but little relished by any kind of live stock, and is exceedingly liable to mildew.

Timoty (*Phleum pratense*) has been introduced into this country from Europe, where it is indigenous. It thrives best in moist soils and rich alluvial clay land. It affords twice as much nourishment when its seeds are ripe, which takes place in August, as when it is cut while in flower. It is valuable as a permanent grass and for



making hay, as well as for alternate husbandry, to be plowed under to prepare the ground for another crop.

Common Oats (*Avena sativa*) have been cultivated in Europe from time immemorial. The oat grows but moderately in the colder parts of the world, and flourishes best in the middle regions of the temperate zone. It becomes sickly and unproductive on approaching the tropics. Oats are easily raised on almost any kind of soil, from the heaviest loam to the lightest sand.

Indian Corn (*Zea Mays*) is indigenous in the West India Islands, where it reaches the height of from twelve to fourteen feet, and completes its course of vegetation in forty days. It flourishes between the fortieth degree of south latitude and the forty-fifth degree of north latitude. It is extensively produced in some parts of Asia and Africa. It is the common bread corn of the Levant, and of a large part of Spain, Italy and southern France.

It has made its way even to many parts of Germany, Belgium, and the southern and central parts of England. Its widest range of production extends over the whole of the Middle, Western and Southern States, as well as Mexico, where it constitutes one of the principal cereals for making bread, and the chief material for feeding cattle and horses.

Sugar cane (*Saccharinum officinarum*), or the material derived from it, is one of the principal staple products of Louisiana plantations. It is mostly cultivated in the coast and gulf parishes. It is a perennial plant belonging to the family of grasses. It varies in height from six to fifteen feet. The stalk is knotty, with a leaf and inner point at each knot. It is propagated by slips or pieces of stem with buds on them. There are three kinds of cane which are cultivated for the production of sugar. The old creole cane, which has dark green leaves, a slender stem, and is close jointed. It came originally from India, and was introduced in the West India Islands. The cane from Otaheite is the most valuable. It has light green leaves with a thick stem, grows to a considerable height, is very juicy, and presents a luxuriant appearance. The cane from Batavia is indigenous in Java. Its purplish leaves are very long and broad, and the juice which it produces is preferred for the manufacture of rum. The sugar cane has been introduced into Louisiana from the French West India Islands.

Sugar was known to the ancients. Dioscorides refers to the canes of India and Arabia Felix as producing honey; and Pliny speaks of the *saccharum* of Dioscorides as being used in medicine.

Sugar lands, unless naturally rich, require an abundance of manure; but saline matter should be avoided, since common salt (chloride of sodium) and muriate of ammonia form non-crystallizable compounds with sugar. Within the crisp rind of the cane is a whitish, porous pith, saturated with saccharine matter. The juice is expressed by passing the cane through revolving cylinders. From the mill it runs into large boilers, in which it is heated for purification. Lime is used in sugar boiling for the purpose of neutralizing the free acetic acid which exists ready formed in the woody parts of the cane, and to clear it from various foreign materials mingled with it. By application of gradual heat, the impurities which sugar contains form a cake with the lime at the surface of the saccharine liquid, which is drawn off and conveyed to the boilers. After having passed through several boilers, it becomes a dark thick syrup, when it is put into flat coolers to crystalize.

The crushed cane, known as *begasse*, is used as fuel in evaporating the juice, but it would be far more preferable to return it to the land as manure.

Cane juice is a solution of sugar in water, with traces of albumen, gum, and a peculiar substance resembling gluten, or vegetable gelatine; also a minute proportion of cerasin and of a green vegetable wax. It has usually a yellowish color, but is sometimes colorless. It has an agreeable, but rather insipid taste, and a peculiar balsamic odor. It contains from seventeen to twenty per cent. of cane sugar, but the planter only obtains from seven to ten per cent. There is a loss of sugar in the mode of pressing the juice from the cane, and a loss from chemical change due to the exposure to the air, by which the crystallizable sugar becomes degraded into non-crystallizable mucilaginous sugar, called molasses.

Raw sugar is refined by mixing with it a small portion of lime water, bullock's blood, and a quantity of animal charcoal.

Louisiana produced, in 1860, about five hundred millions of pounds of sugar, at the value of twenty-five millions of dollars; and thirty-five millions of gallons of molasses, at the approximate value of seven millions of dollars. It has been estimated that before the war Louisiana produced an average crop of four hundred and forty-

nine thousand hogsheads, or two hundred and twenty-five tons of sugar, which supplied forty per cent. of all the sugar consumed in the United States, amounting, in 1865, to four hundred and three thousand one hundred and nine tons. It is believed by men conversant with the subject that during this crop season there will be one thousand one hundred and seventeen sugar houses in operation, against one thousand two hundred and ninety-one at the commencement of the war, and eight hundred and seventeen in 1869.

Good sugar lands will produce from a thousand to fifteen hundred pounds of sugar and seventy gallons of molasses to the acre. Under the present system of labor, one hand can cultivate, besides the other crop, ten acres of cane, which, at ten cents for sugar and sixty cents for molasses, produces the handsome sum of one thousand three hundred and thirty-six dollars. Sugar growing is, therefore, one of the most profitable agricultural operations, and is alone sufficient to make Louisiana one of the richest States of the Union, provided the money were not, in great part, carried away by Northern merchants and speculators, who make fortunes by Southern commerce, and build palaces in New York, where they and their families live in magnificence and splendor.

Cotton (*Gossypium herbaceum*) is one of the principal agricultural products of Louisiana, second in importance only to sugar. It is an article of commerce of such great value that it places New Orleans in the first rank of the exporting cities of the world. Herbaceous cotton is chiefly cultivated in the Southern States and the East Indies. It grows from two to eight feet in height, is rich in foliage, and its fibrous seeds are preceded by flowers of pale yellow and crimson color, like that of the hibiscus, for it belongs to the mallow family. As the flowers fall, a capsule is found containing the fibres of cotton which constitute the covering that envelop the seeds. Cotton was cultivated in the East Indies five centuries before the Christian era. The clothing of the Hindoos consisted chiefly of garments made of this vegetable product. But the India cotton is of shorter staple, and consequently much inferior to that of the Southern States. In Borneo and many of the tropical regions, the plant on which the cotton grows is flourishing in a wild state. In the West Indies, in Brazil and in Egypt it is produced from a shrub.

There is also a variety of herbaceous cotton called Sea Island cotton, which grows nowhere else except in Florida and the islands on



the Georgia and South Carolina coast. It is very valuable on account of its long fibre, and is only employed in the manufacture of lace and other costly articles of luxury.

Cotton fibre, when examined by the microscope, is found to be somewhat flat, and bluntly triangular. Its direction is not straight, but contorted so that the locks can be extended and drawn out without doing violence to the fibres. The threads are finely toothed, which is the reason for their adhering together.

The New Orleans and Mobile cotton is most valued in the European markets. Before the war four millions of bales, at four hundred pounds a bale, were produced, the value of which was estimated at one hundred and fifty millions of dollars. Louisiana produced before the war five hundred and fifty thousand bales of cotton, whose value was no less than twenty-two millions of dollars.

Cotton seed contains a fixed oil which is expressed and sold for lubricating purposes. It is valuable as food for cattle, and as manure for exhausted cotton lands.

Rice (*Oryza sativa*) was cultivated in the East from time immemorial. It is the most wide spread of all the cereal grasses. In Southern Asia it is almost the only food of the lower classes. The Japanese and Chinese, and the people of the East Indies, of Madagascar, Persia and North Africa would be exposed to great suffering without a sufficient supply of rice. It flourishes in the countries north of the Mediterranean—Turkey, Greece, Italy and Spain. It has been found in a wild state in the interior of South America. It forms the principal staple product of the coast plantations of Georgia and the Carolinas, and it is cultivated to a limited extent on some of the coast plantations below New Orleans. It is an annual grass growing up with a stalk similar to that of wheat, having the joints, however, much closer, and much more numerous. The grains are enveloped in rough yellow husks, provided with an awn. The seeds divested of the husks constitute the rice of commerce.

There are several varieties. The common rice grows only in marshy soil, and requires irrigation at certain stages of its growth. The mountain rice (*Oryza mutica*) is cultivated in Cochin China and Java, and flourishes best on the slopes of hills.

Tobacco (*Nicotiana tabacum*) is probably a native of tropical America. It is now cultivated in most parts of the world, of which the Cuba and the Virginia tobacco are the most celebrated. To-

bacco acquires a strong penetrating odor after it has undergone the necessary manipulation to prepare it for market. The fresh leaf is without odor. It has a bitter, nauseous and acrid taste. These properties are imparted to water and alcohol. Its active principle which has been separated has received the name of nicotia. In its action on the animal system it is the most virulent poison known. A drop of it in the state of concentrated solution is sufficient to destroy a dog; and small birds perish at the approach of a tube containing it. In man, it is said to destroy life in poisonous doses in from two to five minutes. Tannin might be employed as a counter-poison.

Tobacco unites the powers of a sedative and narcotic to that of an emetic. It produces this effect to a greater or less degree to whatever surface it may be applied. When chewed it irritates the mucous membrane of the mouth and increases the flow of saliva. Moderately used, it quiets restlessness, calms mental and corporeal inquietude.

The use of tobacco was adopted by the Spaniards from the American Indians, some tribes considering smoking a religious ceremony. Nuttall tells us that an Indian chief informed him that the Osages smoked to the Great Spirit or to the sun, and accompanied it by the following apostrophe: "Great Spirit deign to smoke with me as a friend; fire and earth smoke with me and assist me to destroy my enemies; my dogs and horses smoke also with me."

Tobacco was introduced into France by the French ambassador at the court of Portugal, whose name, which was Nicot, has been immortalized in the generic name of the plant. Sir Walter Raleigh is said to have introduced the practice of smoking into England.

Smoking, when indulged in to excess, enfeebles digestion, produces emaciation and general debility, and lays the foundation of serious nervous disorders. Four cases of insanity have been reported to have occurred in the Pennsylvania hospital of the insane, the cause of which had been ascribed to the abuse of tobacco. Its violent action as a remedial agent prevents its frequent employment in medical practice, and it is chiefly used as a narcotic to produce relaxation in spasmodic affections.

The spectroscopic analysis has shown that tobacco ash contains the rare mineral called lithia, which imparts such a beautiful red color to the flame.

Tobacco is not much cultivated in Louisiana for general consumption. The perique is, perhaps, the only kind which has acquired considerable celebrity, for its strength and the purity of its materials, and is preferred by inveterate smokers to every other kind of the manufactured article. It is principally cultivated in St. James parish, and perhaps, also, in Natchitoches.

#### MICROSCOPICAL BOTANY.

This new branch of botanical science, brought to light by Professor Ehrenberg, of Berlin, who was the first to discover fossil silicious shells, and extending his investigations, he found many living types exactly identical with those in a fossil state. As these little organisms move freely in water, it was at first supposed that they belong to the animal kingdom; but it is now established beyond all controversy that the desmidiæ and diatomaceæ are unicellular plants belonging to the class of fresh water and marine algae. Since that time an extensive microscopic flora has been discovered, and a great number of specimens have been described, existing in every part of the world.

The diatomaceous algae present the most beautiful forms, the most exquisite carvings, and the most brilliant coloring. This branch of botany possesses as much fascination, and excites an interest as intense as that felt by the astronomical observer, who watches with close attention, with the aid of his instrument, the course of the stars and the revolutions of the planets, plunging into the world of the infinite and the unknown; thus unveiling the secrets of nature, and extending his ravished vision beyond the ken of ordinary mortals.

The student of microscopic botany transfers himself into a new world; not to that which is infinitely great in space; not to that which, though of immense magnitude, can not be seen by unaided vision, on account of the vast distance which intervenes between it and the eye of the observer; but to that world which is near and within reach of human sight, but is nevertheless invisible to the human eye, on account of its almost inconceivable diminutiveness. The most minute diatom, which in size measures only one-thousandth part of an inch, is as much the work of the Creator as those immense masses of worlds, in comparison to which our earth is a mere speck



in the immensity of space. Its general outline and beautiful symmetry of form, as well as its mode of life and manner of propagation, is as wonderful as the most astounding astronomical phenomena. It is a new world, which, so to say, has been called into existence during this nineteenth century, the age of great discoveries, a world diversified by hundred different forms, peopled by hundred different, living, moving, self-producing organisms, existing in a single drop of water. I cannot resist the temptation of adding here the beautiful motto of Greville's Scottish Cryptogamic Flora, in the original Latin, as it would lose much of its beauty by translating it: "*Cui bono haec omnia? Ut cognoscamus sapientium Creatoris, quae in minimis non minus educat quam in magnis plantis.*"

Prompted by the desire of studying this branch of science, which ought to be cultivated in every school of a high grade, I undertook, with the University microscope at my disposal, the most attractive study the scientific explorer can be engaged in—the examination of the Microscopic Algæ of Louisiana. Unfortunately the magnifying power of the various object glasses of our microscope is not exactly known. It may however be safely assumed that its highest power ranges from between 200–250 diameters. I have been enabled by means of this instrument to determine from eighty to ninety species of Desmidiæ and Diatomaciæ, most of them with complete certainty; a few only approximately, taking Pritchard's Infusoria as my guide, and consulting Rabenhorst's "*Flora Europæa Algarum.*"

Most of the specimens, of which a list is annexed, have been microscopically viewed while in a living state, and have been carefully studied after preparing and mounting them in Canada balsam. They are thus permanently fixed, and their place on the slide, which is precisely indicated by means of that admirable and simple little contrivance, called Maltwood's Finder, is registered in a book kept for that purpose, so that the specimens can be examined at pleasure at any future time. I intended to accompany this report with the figures of all the microscopic plants determined, but the appliances required to accomplish the object have not yet been received, and consequently that part of my report will not have as much interest, as far as men of science are concerned, as it would otherwise possess, if it had been possible to give the illustrations.

As there is no microscopist in the United States, who, as far as I know, has taken the place of the late Professor Bailey, of the West Point Military Academy, it would be well that the Louisiana State University should adopt this branch of natural science as a specialty, and thus contribute by scientific research to the diffusion of scientific knowledge, in which the scientific world takes considerable interest. It must not be understood, however, that I have the least pretension of being able to fill the place left vacant by Professor Bailey. I can only promise, that I shall use my humble abilities to the utmost, in order to give a more extensive range to microscopic investigations as regards the Algæ of Louisiana and the Southern States.

But to accomplish this object successfully and give authority to my determinations it would be necessary to supply all the means which the modern improvements of the microscope afford. It is some months, since you have ordered Ehrenberg's Infusoria and Ralf's British Desmidiæ to be purchased for the use of the University, but they have not yet been received, and consequently, I could not avail myself of the information these works would have furnished me to render my report on microscopic plants more complete. It would also be of great advantage, and in some cases it would be indispensably necessary, to possess prepared slides, containing specimens of all the diatomaceæ thus far found in the United States, for comparison, so as to determine new species with certainty. Additional object glasses ranging from three hundred to a thousand diameters would also be necessary, for some of the markings of the diatomaceæ are so delicate that they can only be seen with object glasses of very high powers, and the determination frequently depends on these markings.

A great number of these microscopic plants, many of which are probably new species, are still undetermined, not only for the reasons already stated, but, also, because I have not been able to correspond with scientific men in this country who are familiar with this subject, and I must, therefore, defer to a more propitious time to furnish the full catalogue of the specimens found and preserved for future examination.

#### THE FLORA OF LOUISIANA.

In undertaking the botanical survey of the State and collecting every species of plant that grows in Louisiana, my object has been

to make the collection valuable, not only for the purpose of obtaining a succinct view of the inexhaustless resources of wealth derived from the vegetable kingdom, scattered over the State, but to offer to the young student of botany a scientific collection of authentic specimens, which he may consult whenever any difficulty may present itself in the determination of plants, he may meet with in his botanical excursions.

When the list of plants, constituting the Flora of Louisiana, shall be completed, it will afford considerable interest to the scientific botanist, not only because it includes some few new species, but more especially, because it furnishes him with new data to determine the range and geographical distribution of plants. This is a subject which has not yet received, on account of the insufficiency of information, the attention its importance seems to merit.

To determine and classify nearly a thousand specimens of flower-bearing plants, of mosses, lichens, ferns, algae and fungi, is a task of considerable magnitude. A botanist who wishes to study the stages of growth and development, as well as the specific characteristics of the numerous individual plants embraced in the various branches of botanical science, needs not only the assistance of an extensive library, consisting of books written in different modern languages, as well as Latin, but he must, in addition, have access to collections of authentic specimens, placed at his disposal for consultation and comparison. With all these advantages he would nevertheless encounter many difficulties, and meet with anomalies which he would be unable to explain, without advising with scientific men of long experience and established reputation. Although additional books on botany have been supplied since my last report was written, yet want of time, and the insufficiency of standard works on the cryptogamous plants of the Southern States, have compelled me in many instances to apply to the scientific botanists of the United States to lend me the aid of their experience in the determination of many of the grasses and sedges, and a great number of the non-flower bearing plants. I have corresponded with scientific men in various parts of the country, and have everywhere received the most cordial recognition. I consider it, therefore, a pleasing duty to acknowledge the kind assistance received from Dr. John Torrey, L. L. D., of the city of New York, one of the most eminent botanists of this continent, in the determination of many of the grasses



and sedges. I am under great obligations to C. F. Austin, Esq., of Closter, New Jersey, a bryologist of great experience, for his invaluable services in the determination of the mosses and lichens. I also return my best thanks to Rev. M. A. Curtis, D. D., of Hillsborough, North Carolina, one of the ablest mycologists in this country, who has kindly determined for me many of the fungi thus far collected.

I am indebted to the Smithsonian Institution, through the agency of Prof. Joseph Henry, L. L. D., its able Secretary, for the determination of a portion of the shells collected at Grand Isle and elsewhere, of which a list is annexed.

The books consulted in the determination of plants, and with reference to their medicinal and economical use, are: Gray's Manual of Botany of the Northern United States, Dr. Chapman's Southern Flora, Dabney's Botany of the Southern States, Brown's Trees of North America, Wood & Bache's Dispensatory of the United States, Bruch & Schimper's Bryologia Europæa, Pritchard's Infusoria, Rabenhorst's Flora Europæa Algarum, and the Rural Cyclopaedia.

In the list of plants of the Flora of Louisiana, I deemed it of some importance, in order to render the study of botany more popular, to annex to the botanical name the English name, if such has been in common use; but in the cases of plants which have not yet received an English designation, I anglicised the generic botanical name, and translated the specific name, as far as this was practicable, so as to correspond with some of the characteristics of the plant which it was intended to designate. I have also given the locality where each species of plant was collected, that the report might acquire additional interest by attaching to each specimen some local association. To avoid misapprehension, it is perhaps proper to say that it must not be supposed, because a certain locality is indicated, that the plant grows no where else in the State; on the contrary, most plants have a very extensive range of growth, and there are only very few which are found in some favored spots, and are met with no where else, within certain circumscribed limits.

Some few specimens gathered in the parishes west of the Mississippi, are believed to possess sufficient diversity of characteristics to consider them as new species. They are fully described, so as to enable scientific botanists to recognize them by their specific difference, or refer them to a species previously described and named by other authors.

I have taken the liberty, without previous consultation, to name a new species of *Jussiaea*, "*Jussiaea Boydiana*," as a well merited compliment to you, the superintendent of the University, for your valuable services, and for the efforts made by you in behalf of the botanical survey of the State.

#### CONCLUSION.

Although the list of plants collected within the last twelve months is quite extensive, yet it must not be supposed that, within such a short period of time, I could have collected the greatest number of plants which grow in the State of Louisiana. With the exception of eleven new specimens contributed by R. S. Jackson, Esq., for which he has our thanks, the whole collection has been made by myself personally, and the labor of manipulating the specimens, to prepare them for preservation, has exclusively devolved upon me. Even if the collector could be at different places at the same time, which the accomplishment of such a work, within a given period, would require, it would be impossible to dry and prepare, determine and classify all the plants of Louisiana in a single year. We have comparatively few of the spring and late fall flowers, and these are the seasons when a great number of plants produce their blossoms, and though the number collected will not be much less than one thousand specimens, which have been classified and determined, yet this probably constitutes not more than one-third or one-fourth of the aggregate vegetable productions that grow on Louisiana soil or in Louisiana waters. It would require many years to visit the various localities where the cryptogamous plants flourish best, and, in a scientific point of view, they present a far higher interest than the flower-bearing plants. The trees of Louisiana are of the highest importance, and a whole year might be profitably devoted to their study. A description of the productions of the forest, with the history which each species of tree has in the traditions of the aborigines, who were botanists in their way, as well as the traditions of the early settlers and country people in connection with particular trees, a systematic investigation of the quality of the wood each kind of tree is composed of, its mechanical, economic and artistic uses, would furnish the most interesting as well as the most useful compilation the botanist could engage in. To accomplish this

object, assistance would be needed, information would be required from the most intelligent class in each parish, especially physicians, who travel about in the country, and whose profession leads them to botanical research. The University might by this means obtain a cabinet of sections of wood of all the forest trees and shrubs which grow in Louisiana. These sections should be in duplicate, one in its natural state, and the other smoothed and highly polished by the skill of the artist. The quality of each species of wood, unless already known and described in other works, should be ascertained by experiment, and the University would thus become the depository, not only of useful information, but of samples of the vast economical resources of the forests of Louisiana.

During this session, botany has been introduced as a branch of study in the University, and a course of lectures on that subject has been commenced, and a small class, composed of zealous and attentive students, has been organized.

More time is required to accomplish successfully the object of the botanical survey. One month of the spring season, from the fifteenth of April to the fifteenth of May, ought to be devoted to botanical excursions, in order to collect as many spring plants as possible in different parts of the State.

To enable the botanist to take a wider range and pass through a greater extent of country, it will be indispensably necessary to be provided with a Jersey wagon or a vehicle of that kind, to carry presses and drying papers along with him so as not to be restricted to a central locality as a point of easy communication. Excursions of this kind can not be made on horseback except for a short distance, and in most country neighborhoods I was compelled, because no horse could be procured either for love or money, to travel on foot for miles in the hot summer sun in order to reach localities I desired to visit.

The result of my labors are thus laid before you, and you are able to judge how the duties devolved upon me have been performed.





## FLORA LUDOVICIANÆ.

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### DESCRIPTION OF THE NEW SPECIES REFERRED TO IN THE FOLLOWING LISTS.

1. *Euphorbia Ludoviciana*.—Stem erect, very slender, smooth throughout, alternately branched. Stipules broad lanceolate. Leaves very thin, oblong abovate, slightly tapering towards the base, short petioled, smooth entire. Flowers axillary. Involucre short-pediceled, nearly sessile. Glands six, with six whitish persistent appendages, oblong, obtuse. Capsule orbicular, slightly convex, somewhat flat-topped. Seed broad, rounded on one side and sharply angular on the other, so as to form a triangular solid, with the curved upper side, thickly sprinkled with minute blackish dots. This *Euphorbia* grows from one to two feet high, has an extremely slender, virgate stem. The branches are all simple, are long below and continue gradually to decrease in length to the top, where they give place to almost sessile leaves, with flowers in their axils.

Habitat.—It is found in St. Landry parish, in red, loamy soil.

2. *Euphorbia Megancesos*.—Smooth throughout, stem very slender, ascending, bearing the short flower-branches. Leaves opposite, short-petioled, linear oblong, narrow, obtuse, oblique at the base, obscure dentate, transparently dotted, with a crimson streak along the midrib, the whole plant turning red when in seed. Stipules fringed. Flowers in lateral and terminal clusters. Appendages of glands white or rose colored. Capsule obtuse-angled rugose. Seeds reddish, in the form of a coffeebean, with a groove in the flat base dividing the narrower apex, and the slit extending to one-half of the convex surface.

Habitat.—This plant grows in tufts, in great abundance, near the sand beach of Grand Isle, where nothing else but a few grasses and the *Ipomæa pes capra* flourishes. Its short stem and long branches are from one-half to one foot long.

3. *Sabbatia Nana*.—Stem simple, low, somewhat angled. Leaves small, sessile, the lower spatulate lanceolate, the upper linear lanceolate. Lobes of the corolla five to six, one-third longer than the

narrow linear calyx lobes. Root perpendicular, slender. Flowers rose-colored. Stem three to four inches high. Blooms in August.

Habitat—Marshy soil of Grand Isle.

4. *Sabbatia Oligophylla*.—Stem erect, somewhat four-angled, simple and scape like. Leaves opposite, long linear, lanceolate, acute, clasping, remote, the stem bearing but two pairs of leaves. Radical leaves nine, clustered, obovate, narrowed at the base, and spatulate lanceolate sessile. Flower solitary, terminal. Corolla large, rose-colored, nine parted, three times as long as the partially reflexed linear calyx lobes, four bracted, two of the bracts nearly as long as the petals, and the other two twice as long. Stem eight inches high.

Habitat—Grows in the pine and oak woods beyond Chicotville, St. Landry, in sandy soil, and blooms in August.

This species differs from *Sabbatia-choroides*, in having the stem angled and the leaves clasping. It has but two pairs of cauline leaves, and the others are all radical and clustered, and the flowers are bracted.

It differs from *S. Boykinii* in having four instead of two bracts, and the calyx lobes are not lanceolate, but narrow, linear and reflexed.

The *S. gentianoides*, which it seems to resemble, has no bracts.

5, *Hydrolea Leptocaulis*.—Stem spiny, ascending, smooth, simple or branched. Leaves varying from oblong lanceolate to lanceolate from three to five inches long, acute, smooth, glossy and shining, tapering into a petiole. Flowers large, axillary, mostly solitary, sometimes two in a cluster, pale blue, short-peduncled, almost sessile. Corolla five parted, divisions oblong obtuse with five triangular white spots at the base. Calyx lobes ovate lanceolate, smooth, two-thirds as long as corolla lobes. Stamens and styles exerted.

Habitat—Is found in the bayou near Washington, St. Landry. The outside appearance of this species is so much different from the *H. quadrivalvis*, that I considered it advisable to make a new species of it, though it may only be considered a variety of the latter. The leaves are larger, more deep green and glossy, the flowers are much larger and have a brighter color, besides being distinguished by the white spots at the base of the petals. The calyx lobes are not linear, but ovate lanceolate.

6. *Hydrolea Ludoviciana*.—Stem erect, simple or branched, fis-



tulous, sufrutescent, slender, terrete, hoary-tomentose, spiny, spines long and slender. Leaves ovate or ovate-lanceolate, tapering at both ends, acute or acuminate, entire, velvety-pubescent, with undulate margin, short petioled. Flowers corymbose, terminal, large, crowded, azure blue. Stamens and styles exerted. Styles two to three times as long as stamens, curved in opposite directions. Peduncles crowded with bract-like leaflets. Capsule globular smooth.

Habitat—Marsh prairies near Bayou Portage, St. Mary and near the prairie lakes, St. Landry. It flowers in August.

7. *Jussiaea Boydiana*.—Stem simple, smooth below, slightly pubescent above, ascending from a creeping base. Leaves spatulate lanceolate, tapering into a petiole, obtuse. Flowers large, calyxlobes five, one-third shorter than the petals, lanceolate acute. Capsule linear, cylindrical, half as long as the pedicel. Stem one foot high. Flowers in August; flowers yellow.

Habitat—This species of jussiaea grows in the Mississippi swamp near Port Hudson. It differs from *J. leptocarpa*, which it resembles, by its simple and almost smooth stem, its spatulate leaves, its larger flowers, and especially by its capsule being only half as long as the pedicel, while in the *J. leptocarpa* the capsule is twice as long as the pedicel.

It is named in honor of Colonel Boyd, Superintendent of the Louisiana State University.

8. *Tephrosia angustifolia*.—Stem slender, angled, pubescent, with appressed hairs, decumbent. Leaves short, petioled; petiole rusty villous. Leaflets eighteen to twenty-five, cuneate, lanceolate, narrow, rounded at the apex, strongly mucronate, smooth, with prominent veins on both sides, hairy on the margin and midrib. Racemes slender, two or three times as long as the leaves; from fourteen to fifteen flowered. Calyx teeth, terminating in a long hispid point. Legume falcate, narrow, smooth. Flowers light purple.

Habitat—Pine barrens near Pontchatoula. Flowers in July.

9. *Tephrosia multiflora*.—Stem rusty pubescent, branched, decumbent; leaflets eighteen to twenty-six, nearly sessile, the short petioles woolly pubescent, mostly linear oblong or cuneate oblong, rounded or emarginate at the apex, strongly mucronate, smoothish above, long hairy beneath and on the margin. Raceme stout, two or three times as long as the leaves; eighteen to twenty-five flowered;

calyx hairy; calyx teeth, terminating in a villous point. Corolla hairy. Flowers purple, mixed with yellow. Legume smooth, eight to nine seeded.

Habitat—Pine barrens of Pontchatoula. Flowers in July.

10. *Lilium Lockettii*—Stem about one and a half feet high, naked, leaves radical, clustered, about seven inches long, one inch broad, linear lanceolate, remotely and obscurely dentate, many nerved with transverse interstitial nerves, so as to give the leaf the appearance of laticework. Leaves of the perianth laticed like the stem leaves, narrow, lanceolate, acuminate, white, four inches long. Tube of the perianth two inches long, narrow, attached to a two inch long peduncle. Flowers from three to five, clustered around the summit of the stem.

Habitat—This lily grows in the Calcasieu prairies on the banks of Lake St. Charles, where Colonel Lockett, who conducts the topographical survey, and after whom it is named, first discovered it.

11. *Oenothera paludosa*—Stem slender, simple or branched, somewhat wing-angled, shrubby at the base, fistulous, covered with a scurfy minute pubescence. Leaves entire, narrow lanceolate, acute three nerved, tapering into a short petiole sessile, one and a half inches long. Pod four-angled, not winged longer than the pedicel. Sepals lanceolate, terminating in a subulate point.

Habitat—This *Oenothera* grows in the swampy prairie in St. Landry, between Ville Platte and Chicotville. Its stem is from one to three feet high. It flowers in August. Flowers yellow.

12. *Helenium Seminariense*—Leaves oblong lanceolate, entire, obtuse, decurrent. Scales of involucre linear lanceolate. Ray florets three lobed, broad, cuneate, longer than the disk. Disk florets five-cleft. Disk globose. Scales of pappus ovate, long, awn-pointed. Stem, leaves and peduncles sparingly glandular hairy. Achenia smooth with two ciliate lines.

Habitat—Pine barrens, Rapides. Stem one and a half feet high. Flowers yellow and flowers in June. The flowers of this species are nearly twice as large as those of *H. quadridentatum*.

13. *Lippia nodiflora* Mich., var. *microphylla*.—Stem creeping, peduncles naked, rising from the creeping stem, four to five times as long as the leaves. Leaves fleshy, small, one-half to three-fourths of an inch long, three lines wide; spatulate lanceolate, tapering into a petiole, serrate above, entire below the middle.

**Habitat**—In marshy soil, near New Orleans and Brashear City. The general appearance of this variety is strikingly different from that of the *L. nodiflora*, in which it is probably included. The *L. nodiflora* has broad lanceolate leaves, from one to two inches long; the leaves of this variety are spatulate lanceolate and narrow. In the *L. nodiflora* the peduncles are on erect leafy branches, which might be taken for stems, and they are axillary on their branches; in the new variety, they are also axillary, but rise directly from the creeping stem, which has no branches. The *L. nodiflora* described in Chapman's Southern Flora is in part of the first variety, and the *L. lanceolata* of Gray's Manual is that of the new variety I named *L. microphylla*, which seems to me far preferable, as the *nodiflora* only has lanceolate leaves, but the *microphylla* has not.

14. *Asplenium ebeneum*—Ait. var. A.—*Bacculum Rubrum*.—Stipe and rachis purplish brown, glossy, tall, one to two feet high. Fronds linear, lanceolate, acuminate, pinnate. Pinnæ numerous, sessile auricled on both sides of the base, coarsely serate, the pinnæ below the middle gradually decreasing in length. Fruit-dots elongated, from twenty to thirty on each pinna. Pinnæ distant.

**Habitat**—Near Baton Rouge, on the margin of cultivated fields, overgrown with trees and bushes. It is also found on the edge of the cane brakes.





## PHÆNOGAMOUS OR FLOWERING PLANTS.

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### DICOTYLEDONOUS PLANTS.

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#### RANUNCULACEÆ—*Crowfoot Family.*

*Ranunculus sceleratus*, L., Celery Crowfoot, Baton Rouge, East Baton Rouge.

*Ranunculus muricatus*, L., Prickly-fruited Crowfoot, Baton Rouge, East Baton Rouge.

*Ranunculus parviflora*, L., Small-flowered Crowfoot, Baton Rouge, East Baton Rouge.

*Ranunculus pusillus*, Poir, Puny Crowfoot, Baton Rouge, East Baton Rouge.

*Clematis crispa*, L., Vine, Crisp flowered Clematis, Franklin, St. Mary.

*Clematis Virginiana*, L., Vine, Virgins' Bower, Baton Rouge, East Baton Rouge.

*Clematis Viorna*, L., Vine, Leather-flower, Baton Rouge, East Baton Rouge.

*Anemone thalictroides* var *uniflora*, Meadow-rue Windflower.

*Adonis autumnalis*, L., Phaesant's Eye, near Mississippi river, West Baton Rouge.

*Delphinium azureum*, Mich, Azure Larkspur, Old Seminary, Rapides.

*Delphinium Ajacis*, Ajax Larkspur, Cultivated.

#### MAGNOLIACEÆ—*Magnolia Family.*

*Magnolia grandiflora*, L., tree, Great Laurel Magnolia, Baton Rouge, East Baton Rouge.

*Magnolia fuscatus*, tree, Sweet scented Magnolia, native of China, Cultivated.

*Liriodendron tulipifera*, L., tree, Tulip tree White Poplar, Baton Rouge, East Baton Rouge.

*Illicium Floridanum* Ellis, tree, Florida Anise tree, Port Hudson Railroad, East Feliciana.

NELUMBIACEÆ—*Nelumbo* Family.

*Nelumbo luteum* Willd, Water Chinquapine (No flower), Prairie Lake, St. Landry.

NYMPHÆACEÆ—*Water Lily* Family.

*Nuphar advena* Ait, Bonnets, Spatter-Dock, Covington, St. Tammany.

SARRACENIACEÆ—*Pitcher Plant* Family.

*Sarracenia rubra* Walt, Red Flowered, Trumpet-Leaf, Covington, St. Tammany.

PAPAVARACEÆ—*Poppy* Family.

*Agremone Mexicana* L, Mexican Poppy, near Mississippi River, West Baton Rouge.

CRUCIFERÆ—*Mustard* Family.

*Nasturtium sylvestre* R Br., Yellow Cress, New Orleans, Orleans.

*Nasturtium officinale* R. Br., Water Cress, Baton Rouge, East Baton Rouge.

*Nasturtium tanacetifolium*, Hook. and Arn. Tansey-Leaved Cress, Baton Rouge, East Baton Rouge.

*Nasturtium sessiliflorum*, Nutt, Stalkless-flowered Cress, Baton Rouge, East Baton Rouge.

*Nasturtium palustre*, D. C., Swamp Cress, Baton Rouge, East Baton Rouge.

*Cardamine Ludoviciana*, Hook. Louisiana Bitter-Cress, Baton Rouge, East Baton Rouge.

*Cardamine hirsuta*, L., Common Bitter-Cress, Baton Rouge, East Baton Rouge.

*Lepidium Virginicum*, L., Wild pepper grass, Baton Rouge, East Baton Rouge.

*Senebiera pinnatifida*, D. C., Wart Cress, Swine Cress, Baton Rouge, East Baton Rouge.

*Capsella bursa-pastoris* Moench. Shepherd's Purse, Baton Rouge, East Baton Rouge.



*Sisymbrium officinale*, L., Hedge Mustard, Baton Rouge, East Baton Rouge.

*Brassica rapa* var. *depressa*, Turnip, cultivated.

*Brassica oleracea*, Cabbage, cultivated.

*Raphanus sativus*, Radish, cultivated.

*Cheiranthus cheiri*, Wallflower, Southern Europe, cultivated.

#### CAPPARIDACEÆ—*Caper Family.*

*Cleome pungens* Willd., Strong-scented Cleome, New Orleans, Orleans.

#### VIOLACEÆ—*Violet Family.*

*Viola cucullata* Ait., Hood-leaved Violet, Baton Rouge, East Baton Rouge.

*Viola primulæfolia*, L., Primrose-leaved Violet, Amite River, East Baton Rouge.

*Viola tricolor*, Pansey, Heart's ease, cultivated.

#### HYPERICACEÆ—*St. John's Wort Family.*

*Hypericum corymbosum*, Muhl., Corymbose St. John's wort, Chicotville, St. Landry.

*Hypericum cystifolium*, Lam., Rock rose-leaved St. John's wort, Ville Platte, St. Landry.

*Hypericum prolificum*, L., shrubs, St. John's wort, Old Seminary, Rapides.

*Hypericum prolificum*, L., var. *densiflorum* Pursh, Dense-flowered Hypericum, Pontchatoula, Tangipahoa.

*Hypericum gladioides*, Lam., Sword-leaved Hypericum, Ville Platte, St. Landry.

*Hypericum mutilum*, L. H. *parviflorum*, Muhl., small-flowered Hypericum, Old Seminary, Rapides.

*Hypericum Canadense*, L., Canadian Hypericum, Opelousas, St. Landry.

*Hypericum Sarothra*, Michx., Orange grass, Pine weed, Old Seminary, Rapides.

*Ascyrum stans*, Michx., shrubs, St. Peter's wort, Old Seminary, Rapides.

*Ascyrum Crux Andrea*, L., shrubs, St. Andrew's Cross, Old Seminary, Rapides.

PORTULACCACEÆ—*Purselane Family.*

*Portulacca oleracea*, L., Purselane, Baton Rouge, East Baton Rouge.

CARYOPHYLLACEÆ—*Pink Family.*

*Cerastium valgatum*, L., Common Mouse Ear, Baton Rouge, East Baton Rouge.

*Stellaria media*, Smith, Common Star wort, Baton Rouge, East Baton Rouge.

*Arenaria serpyllifolia*, L., Thyme-leaved Sandwort, introduced.

*Sagina Elliottii*, Fenzl, Elliott's Pearlwort, Baton Rouge, East Baton Rouge.

*Siphonochia Americana*, Tor. and Gray, American Siphonochia, Old Seminary, Rapides.

*Silene quinquevulnera*, L., Five-wounded Silene (introduced), Amite river, East Baton Rouge.

*Silene armeria*, L., Sweet William Catchfly (introduced), Baton Rouge, East Baton Rouge.

*Mollugo verticillata*, L., Carpet weed, Mandeville, St. Tammany.

*Dianthus Chinensis*, China Pink, Native of China, cultivated.

MALVACEÆ—*Mallow Family.*

*Hibiscus incanus*, Wendl, Hoary Rose Mallow, New Orleans, Orleans.

*Hibiscus Moscheutos*, L., Swamp Mallow, Brashear City, St. Mary.

*Hibiscus militaris*, Cav, Halbert-leaved Hibiscus, Brashear City, St. Mary.

*Hibiscus coccineus*, Walt, Scarlet-flowered Hibiscus, Bayou Portage, St. Mary.

*Hibiscus Syriacus*, L, Shrubby Althea, Native of Spain, cultivated.

*Kosteletzkya Virginica* Presl. *Hibiscus Virginicus*, L, Virginia Hibiscus, Lake Pontchartrain, Orleans.

*Callirrhoe papaver*, Gray, Poppy-flowered Callirrhoe, Old Seminary, Rapides.

*Modiola multifida* Moench. *Malva Caroliniana*, Many cleft-leaved *Modiola*, Baton Rouge, East Baton Rouge.

*Sida spinosa*, L, Thorny Sida, Franklin, St. Mary.

*Gossypium herbaceum*, Cotton, cultivated.

TILLIACEÆ—*Linden Family.*

*Corchorus siliquosus*, L, Pod-bearing *Corchorus*, cultivated.

CAMELLIACEÆ—*Camelia Family.*

*Camellia Japonica*, Japan Rose, Native of Japan, cultivated.

AURANTIACEÆ—*Orange Family.*

*Citrus aurantium*, tree, Orange, Native of Asia, cultivated.

LINACEÆ—*Flax Family.*

*Linum Virginianum*, Wild Flax, Old Seminary, Rapides.

OXALIDACEÆ—*Wood Sorrel Family.*

*Oxalis stricta*, L, Yellow Wood Sorrel, Baton Rouge, East Baton Rouge.

GERANIACEÆ—*Geranium Family.*

*Geranium Carolinianum*, L, Carolina Cranesbill, Baton Rouge, East Baton Rouge.

*Pelargonium inquinans*, Scarlet *Pelargonium*, cultivated.

BALSAMINACEÆ—*Balsam Family.*

*Impatiens balsamina*, Garden Balsamine, Native of East Indies, cultivated.

RUTACEÆ—*Rue Family.*

*Zanthoxylum Carolinianum*, Lam, tree, Toothache Tree, Port Hudson and Clinton Railroad, East Feliciana.

*Ptelea trifoliata*, L, Three-leafed *Ptelea*, Baton Rouge, East Baton Rouge.

ANACARDIACEÆ—*Cashew Family.*

*Rhus copallina*, L, shrub, Sumach, Old Seminary, Rapides.

*Rhus toxicodendron*, L, var. *radicans* Tor, vine, Poison Ivy, Baton Rouge, East Baton Rouge.

VITACEÆ—*Vine Family.*

*Vitis æstivalis*, Michx, Summer Grape, Grosse Tête Railroad, West Baton Rouge.



*Vitis vulpina*, L, Muscadine, Baton Rouge, East Baton Rouge.

*Ampelopsis quinquefolia*, Michx. vine, Virginia Creeper, Baton Rouge, East Baton Rouge.

RHAMNACEÆ—*Buckthorn Family.*

*Rhamnus lanceolata*, Pursh, tree, Lance-leafed Buckthorn, Baton Rouge, East Baton Rouge.

*Ceanothus Americanus*, L., Jersey tea, Old Seminary, Rapides.

*Berchemia volubilis*, D. C., vine, Supple Jack, Baton Rouge, East Baton Rouge.

CELASTRACEÆ—*Staff Tree Family.*

*Euonymus Americanus*, L., shrub, Strawberry bush, Baton Rouge, East Baton Rouge.

SAPINDACEÆ—*Soap-berry Family.*

*Cardiospermum Halicacabum*, L., Balloon vine Heart-seed, Port Hudson, East Feliciana.

*Aesculus Pavia*, L., shrub, Small Buckeye, Baton Rouge, East Baton Rouge.

ACERACEÆ—*Maple Family.*

*Acer dasycarpum*, Ehrh., tree, Silver Maple, Baton Rouge, East Baton Rouge.

POLYGALACEÆ—*Milkwort Family.*

*Polygala fastigiata*, Nutt, Tower-branched Polygala, Chicotville, St. Landry.

*Polygala ramosa*, Ell., Branching Polygala, Covington, St. Tammany.

*Polygala cruciata*, L., Cross-leafed Polygala, Pontchatoula, Tangipahoa.

*Polygala Nutallis*, Tor. & Gr., Nutall's Polygala, Amite City, Tangipahoa.

*Polygala nana*, D. C., Dwarf Polygala, Old Seminary, Rapides.

*Polygala cymosa*, Walt., Bushy Polygala, Pontchatoula, Tangipahoa.

*Polygala incarnata*, L., Flesh-colored Polygala, Old Seminary, Rapides.

LEGUMINOSÆ—*Bean Family.*

*Crotalaria sagittalis*, L., Arrow-leafed Rattle Box, Old Seminary, Rapides.

*Crotalaria Purshii*, D. C., Pursh's Rattle Box, Ponchatoula, Tangipahoa.

*Crotalaria ovalis* Pursh, Oval-leafed Rattle Box, Covington, St. Tammany.

*Melilotus officinalis*, L., Sweet Clover, near Mississippi river, West Baton Rouge.

*Stylosanthes elatior*, Swartz, Tall Pencil-flower, Old Seminary, Rapides.

*Vicia sativa*, L., Vetch, Baton Rouge, East Baton Rouge.

*Trifolium repens*, L., White Clover, Baton Rouge, East Baton Rouge.

*Trifolium pratense*, L., Red Clover, Baton Rouge, East Baton Rouge.

*Trifolium Carolinianum*, Michx, Carolina Trefoil, Brashear City, St. Mary.

*Trifolium procumbens*, L., Yellow or Hop Clover, Baton Rouge, East Baton Rouge.

*Trifolium agrarium*, L., Field Clover.

*Desmodium viridiflorum*, Bech, Green-flowered Tick-Trefoil, Chicotville, St. Landry.

*Desmodium strictum*, D. C., Stiff Tick-Trefoil, Chicotville, St. Landry.

*Desmodium nudiflorum*, D. C., Sparse-flowered Tick-Trefoil, Chicotville, St. Landry.

*Desmodium glabellum*, D. C., Smooth Tick-Trefoil, Chicotville, St. Landry.

*Desmodium molle*, D. C., Soft-leafed Tick-Trefoil, Chicotville, St. Landry.

*Desmodium tenuifolium*, Tor. and Gray, Slender-leafed Tick-Trefoil, Chicotville, St. Landry.

*Desmodium canescens*, D. C., Hoary Tick-Trefoil, Opelousas, St. Landry.

*Desmodium paniculatum*, D. C., Cluster-flowered Tick-Trefoil, Baton Rouge, East Baton Rouge.

*Lespedeza capitata*, Mich., Bush Clover, Old Seminary, Rapides.

*Lespedeza hirta*, Ell., Rough-stemmed Bush Clover, Old Seminary, Rapides.

*Cercis Canadensis*, L., tree, Red Bud, Baton Rouge, East Baton Rouge.

*Amorpha fruticosa*, L., shrub, False Indigo, Baton Rouge, East Baton Rouge.

*Phaseolus helvolus*, L., Pale-red-flowered Bean, Chicotville, St. Landry.

*Phaseolus diversifolius*, Pers., Various-leafed Bean, Port Hudson, East Feliciana.

*Phaseolus vulgaris*, String Bean, Cultivated.

*Phaseolus lunatus*, Lima Bean, Cultivated.

*Vigna glabra*, Savi., Smooth Vigna, New Orleans, Orleans.

*Baptisia lanceolata*, Ell., Lance-leafed Baptisia, Ville Platte, St. Landry.

*Centrosema Virginiana*, Pursh., Spurred Butterfly Pea, Port Hudson, East Feliciana.

*Clitoria Mariana*, L., Butterfly Pea, Old Seminary, Rapides.

*Tephrosia Virginiana*, Pers., Goat's Rue, Old Seminary, Rapides.

*Tephrosia spicata*, Tor. and Gray, Spike-flowered Tephrosia, Old Seminary, Rapides.

*Tephrosia paucifolia*, N. sp., Sparse-leafed Tephrosia, Pontchatoula, Tangipahoa.

*Tephrosia angustifolia*, N. sp., Narrow-leafed Tephrosia, Pontchatoula, Tangipahoa.

*Tephrosia multiflora*, N. sp., Many-flowered Tephrosia, Pontchatoula, Tangipahoa.

*Galactia pilosa*, Ell., Hairy Milk pea, Bayou Portage, St. Mary.

*Galactia brachypoda*, Tor. and Gray, Short-podded Galactia, Covington, St. Tammany.

*Galactia mollis*, Michx., Soft-leafed Galactia, Pontchatoula, Tangipahoa.

*Galactia spiciformis*, Tor. and Gray, Spike-flowered Galactia, Grand Isle, Jefferson.

*Rhynchosia minima*, D. C., Small-flowered Rhynchosia, Baton Rouge, East Baton Rouge.

*Rhynchosia tomentosa*, Tor. and Gr., var. *volubilis*, Changeable Woolly Rhynchosia, Old Seminary, Rapides.



*Rhynchosia tomentosa*, Tor. and Gr., var. *erecta*, Erect Woolly Rhynchosia, Chicotville, St. Landry.

*Sesbania macrocarpa*, Muhl., Large-fruited Sesbania, Opelousas, St. Landry.

*Robinia pseudacacia*, L., tree, Flowering Locust, Baton Rouge, East Baton Rouge.

*Gleditchia triacanthos*, L., tree, Honey locust, Baton Rouge, East Baton Rouge.

*Arachis hypogaea*, Peanut, Native of Africa, Cultivated.

*Cassia nictitans*, L., Wild, Sensitive plant, Chicotville, St. Landry.

*Cassia obtusifolia*, L., Obtuse-leaved Cassia, Port Hudson, East Feliciana.

*Cassia Marylandica*, L., Wild Senna, Old Seminary, Rapides.

*Cassia chamaecrista*, L., Patridge Pea, Ville Platte, St. Landry.

*Cassia occidentalis*, L., Western Cassia, Baton Rouge, East Baton Rouge.

*Schrankia angustata* var. *brachycarpa*, Tor. and Gr., Short-fruited Sensitive Briar, Washington, St. Landry.

*Schrankia uncinata*, Willd., Prickle-hooked Briar, Old Seminary, Rapides.

*Desmanthus brachylobus*, D. C., Short-lobed Desmanthus, Port Hudson, East Feliciana.

*Albizia Julibrissin*, tree, Tree Mimosa, cultivated.

*Acacia Farnesiana*, tree, Black Thorn, Baton Rouge, East Baton Rouge.

*Acacia dealbata*, tree, Phyllode-leaved Acacia, native of Australia, cultivated.

*Dolichos lablab*, Egyptian Bean, native of Egypt, cultivated.

*Wistaria Chinensis*, Cl. bush, Chinese Wistaria, native of China, cultivated.

#### ROSACEÆ—*Rose Family.*

*Agrimonia Eupatoria*, L., Common Agrimony, Chicotville, St. Landry.

*Cratægus spathulata*, Michx., tree, Broad-leaved Thorn, Baton Rouge, East Baton Rouge.

*Cratægus arborescens*, Ell, tree, Tree-like Thorn, Old Seminary, Rapides.

*Cratægus aestivalis*, Tor. and Gray, tree, Summer Hawthorn, Old Seminary, Rapides.

*Cratægus apiifolia*, Tor. and Gray, tree, Celery-leaved Hawthorn, Baton Rouge, East Baton Rouge.

*Cratægus Crus galli*, L., Cockspur Thorn, Baton Rouge, East Baton Rouge.

*Potentilla Norwegica*, L., Norwegian Cinqufoil, Baton Rouge, introduced.

*Rosa laevigata*, Michx, bush, Cherokee Rose, Baton Rouge, East Baton Rouge.

*Rubus trivialis*, Michx, Blackberry, Dewberry, Baton Rouge, East Baton Rouge.

*Rubus villosus*, Ait., High Blackberry, Baton Rouge, East Baton Rouge.

*Prunus Virginianus*, L., tree, Wild Cherry tree, Amite River, East Baton Rouge.

*Prunus Carolinianus*, Ait., tree, Cherry-leaved Wild Orange, Baton Rouge, cultivated.

*Prunus domestica*, tree, Common Plum, cultivated.

*Cydonia Japonica*, shrub, Japan Quince, cultivated.

*Amygdalus Persica*, Mull, tree, Peach tree, cultivated.

*Amygdalus nana*, shrub, Flowering Almond, native of Russia, cultivated.

*Spiræa hypericifolia*, shrub, Italian May, St. Peter's Wreath, cultivated.

#### CALYCANTHUCE--*Carolina Allspice Family.*

*Calycanthus floridus*, L., shrub, Flowering Sweet-scented Shrub, native of North Carolina, cultivated.

#### MELASTOMACEE—*Melastoma Family.*

*Rhexia Mariana*, L., Deer grass, Old Seminary, Rapides.

*Rhexia glabella*, Michx. Smooth-stemmed Rhexia, Pontchatoula, Tangipahoa.

*Rhexia Virginica*, L., Virginia Rhexia, Ville Platte, St. Landry.

*Rhexia stricta*, Pursh, Stiff-stemmed Rhexia, Ville Platte, St. Landry.

MYRTACEÆ—*Myrtle Family.*

*Punica granatum*, tree, Pomegranate, native of South Europe, naturalized.

LYTHRACEÆ—*Loose-strife Family.*

*Ammannia ramásior*, Michx, Many-branched Ammania, Baton Rouge, East Baton Rouge.

*Ammannia humilis*, Michx, Low-stemmed Ammania, Clinton, East Feliciana.

*Ammannia latifolia*, L., Wide-leaved Ammania, Washington, St. Landry.

*Lythrum alatum*, Pursh, Loose-strife, Franklin, St. Mary.

*Cuphea vicossissima*, Jacq., Clammy Cuphea.

*Lagerstræmia Indica*, L., Grape Myrtle, Ville Platte, naturalized.

ONAGRACEÆ—*Evening Primrose Family.*

*Oenothera biennis*, L. *O. grandiflora* Ait., Common Evening Primrose, Washington, St. Landry.

*Oenothera fruticosa*, L., Sun-drops Primrose, Amite City, Tangipahoa.

*Oenothera sinuata*, L., Sinuate-leaved *Oenothera*, Baton Rouge, East Baton Rouge.

*Oenothera sinuata*, var. *humifusum*, Tor. & G., Lowly *Oenothera*, Grand Isle, Jefferson.

*Oenothera paludosa*, N. Sp., Swamp *Oenothera*, Pine prairie swamp, St. Landry.

*Ludwigia alternifolia*, L., Seed Box, Chicotville, St. Landry.

*Ludwigia hirtella*, Raf, Rough-haired *Ludwigia*, Pontchatoula, Tangipahoa.

*Ludwigia palustris*, Ell., Water Purselane, New Orleans, Orleans.

*Jussiaea decurrens*, D. C., Stem-winged *Jussiaea*, Baton Rouge, East Baton Rouge.

*Jussiaea leptocarpa*, Nutt, Slender-fruited *Jussiaea*, Port Hudson East Feliciana.

*Jussiaea grandiflora*, Michx, Large-flowered *Jussiaea*, Grosse Tete Railroad, West Baton Rouge.

*Jussiaea Boydiana*, N. Sp., Boyd's *Jussiaea*, Port Hudson, East Feliciana.



*Gaura angustifolia*, Michx, Narrow-leafed Gaura, Old Seminary, Rapides.

*Gaura biennis*, L., Biennial Gaura, Old Seminary, Rapides.

*Gaura filipes*, Spach., Slender-stalked Gaura, Covington, St. Tammany.

CACTACEÆ—*Cactus Family.*

*Opuntia Ficus Indica*, Haw., Indian Fig Prickly Pear, Franklin, St. Mary.

*Opuntia vulgaris*, Mill., Common Prickly Pear, Amite river, East Baton Rouge.

PASSIFLORACEÆ—*Passion Flower Family.*

*Passiflora lutea*, L., Yellow Passion Flower, Port Hudson, East Feliciana.

*Passiflora incarnata*, L., Passion Flower, Maypop, near Mississippi river, West Baton Rouge.

CUCURBITACEÆ—*Cucumber Family.*

*Melothria pendula*, L., Hanging Melothria, Opelousas, St. Landry.

*Lagenaria vulgaris*, Ser., Gourd, native of Tropics, cultivated.

*Momordica balsamina*, Common Balsam Apple, native of East Indies, cultivated.

*Cucurbita pepo*, Pumpkin, native of the Levant, cultivated.

*Cucurbita verucosa*, Warted Squash, cultivated.

*Cucumis citrulus*, Ser., Water Melon, native of Africa and India, cultivated.

CRASSULACEÆ—*Orpine Family.*

*Penthorum sedoides*, L., Ditch Stone Crop, Grosse Tête, Baton Rouge, West Baton Rouge.

SAXIFRAGACEÆ—*Saxifrage Family.*

*Itea Virginica*, L., tree, Virginia Itea, Baton Rouge, cultivated.

*Hydrangea quercifolia* Bartram, Oak-leafed Hydrangea, Baton Rouge, East Baton Rouge.

*Hydrangea hortensia*, Garden Hydrangea, cultivated.

*Deutzia crenata*, shrub, Notch-leafed Deutzia, cultivated.

*Philadelphus coronarius*, shrub, Mock Orange, False Syringa, native of South Europe, cultivated.

HAMAMELACEÆ—*Witch Hazel Family.*

*Liquidamber styraciflua*, L., tree, Sweet Gum, Old Seminary, Rapides.

UMBELLIFERÆ—*Parsley Family.*

*Leptocaulis divaricatus*, D. C., Spread-leafed *Leptocaulis*, Baton Rouge, East Baton Rouge.

*Daucus pusillus*, Mich., Slender Carrot, Baton Rouge, East Baton Rouge.

*Archemora rigida*, D. C., Stiff-leafed Cowbane, Old Seminary, Rapides.

*Sanicula canadensis*, L., Canada Black Snakeroot, Old Seminary, Rapides.

*Discopleura capillacea*, D. C., Fine-leafed Mock-bishop weed, Old Seminary, Rapides.

*Eryngium baldwinii* Spreng, Baldwin's *Eryngium*, Pontchatoula, Tangipahoa.

*Chærophyllum teinturierii*, Hook and Arn, Teinturier's Chervil, Atchafalaya river, St. Mary.

*Chærophyllum procumbens*, Lam, Reclining Chervil, Grosse Tete, West Baton Rouge.

*Hydrocotyle interrupta* Muhl. Common Pennywort, Washington, St. Landry.

*Hydrocotyle umbellata* L., Umbellate Pennywort, Clinton, East Feliciana.

*Apium graveolens*, Celery, Native of Britain, cultivated.

*Fœniculum vulgare*, Common Fennel, Native of England.

*Conselinum canadense*, Tor. and Gr., Canada Hemlock Parsley, Brashear City, St. Mary.

*Cicuta maculata*, L, Water Hemlock, Old Seminary, Rapides.

CORNACEÆ—*Dogwood Family.*

*Cornus florida*, L, tree, Flowering Dogwood, Baton Rouge, East Baton Rouge.

*Cornus stricta*, Lam, tree, Stiff Cornel, Grosse Tete Railroad, West Baton Rouge.

CAPRIFOLIACEÆ—*Honeysuckle Family.*

*Sambucus canadensis*, L, shrub, Canadian Elder, Baton Rouge, East Baton Rouge.

*Lonicera sempervirens*, Ait, vine, Evergreen Woodbine, Baton Rouge, East Baton Rouge.

*Viburnum prunifolium*, L, shrub, Black Haw, Baton Rouge, East Baton Rouge.

RUBIACEÆ—*Madder Family.*

*Mitchella repens*, L, Creeping Partridge berry, Amite river, East Baton Rouge.

*Mitreola sissilifolia*, Tor. and Gr., Stalkless-leaved Miterwort, Pontchatoula, Tangipahoa.

*Mitreola petiolata*, Tor. and Gr., Stalk-leaved Miterwort, Ville Platte, St. Landry.

*Polypremum procumbens*, L, Reclining Polypremum, Old Seminary, Rapides.

*Spermacoce glabra*, Michx, Smooth Buttonweed, Washinton, St. Landry.

*Cephalanthus occidentalis*, L, Button Bush, Old Seminary, Rapides.

*Diodia teres* Walt *Spermacoce diodina*, Michx, Round-stemmed Buttonweed, Old Seminary, Rapides.

*Diodia Virginiana*, L, Virginia Diodia, Baton Rouge, East Baton Rouge.

*Galium circaesans*, Michx, Wild Liquorice, Washington, St. Landry.

*Galium aparine*, L, Goose-grass, Cleavers, near Mississippi river, West Baton Rouge.

*Oldenlandia cœrulea*, Gray, *Houstonia cœrulea*, Bluets, Amite river, East Baton Rouge.

*Oldenlandia angustifolia*, Gray, Narrow-leaved *Oldenlandia*, Old Seminary, Rapides.

*Oldenlandia angustifolia* var. *filifolia*, Gr., Thread-leaved *Oldenlandia*, Old Seminary, Rapides.

*Gelsemium sempervirens*, Ait, Yellow Jessamine, Baton Rouge, East Baton Rouge.

*Spigelia Marylandica*, L, Pinkroot, Cheneyville, Rapides.

COMPOSITEÆ—*Composite Family.*

*Vernonia fasciculata*, Michx, Bushy-branched Ironweed, Opelousas, St. Landry.

*Vernonia angustifolia*, Michx, Narrow-leaved Ironweed, Chicotville, St. Landry.



*Elephanthopus Carolinianus*, Willd, Carolina Elephant's Foot, Old Seminary, Rapides.

*Carphephorus bellidifolia*, Tor. and Gr., Daisy-leafed *Carphephorus*, Amite City, Tangipahoa.

*Liatris gracilis*, Pursh, Slender-stemmed *Liatris*, Amite City, Tangipahoa.

*Liatris squarrosus*, Willd, Blazing Star, Pontchatoula, Tangipahoa.

*Liatris elegans*, Willd, Elegant-flowered *Liatris*, Old Seminary, Rapides.

*Pluchea bifrons*, D. C., Double-leafed Marsh Fleabane, Old Seminary, Rapides.

*Pluchea foetida*, D. D., Strong-scented Fleabane, Old Seminary, Rapides.

*Baccharis hamilifolia*, L, shrub, Sea Groundsel Tree, Baton Rouge, East Baton Rouge.

*Ambrosia trifida*, L, Great Ragweed, Baton Rouge, East Baton Rouge.

*Ambrosia artemisiæfolia*, L, Roman Wormwood, Hogweed, Baton Rouge, East Baton Rouge.

*Lappa major*, Gaert, Burdock, Baton Rouge, East Baton Rouge.

*Iva frutescens*, L, shrub, Shrubby Marsh Elder, Bayou Portage, St. Mary.

*Pterocaulon pycnostachyum*, Ell., Close-flowered *Pterocaulon*.

*Parthenium hysterophorus*, L., Late-blooming *Parthenium*, New Orleans, Orleans.

*Gnaphalium purpureum*, L., Purplish Cudweed, Baton Rouge, East Baton Rouge.

*Gnaphalium polycephalum*, Michx., Common Everlasting, Old Seminary, Rapides.

*Cirsium altissimum*, Spreng., High-stemmed Plumed Thistle, Baton Rouge, East Baton Rouge.

*Cirsium muticum*, Michx., Swamp Thistle, Old Seminary, Rapides.

*Cirsium Virginianum*, Michx., Virginia Thistle, Baton Rouge, East Baton Rouge.

*Conoclinium coelestinum*, D. C., Blue Mistflower, Old Seminary, Rapides.

*Eupatorium teucrifolium*, Willd., Germander-leafed *Eupatorium*, Chicotville, St. Landry.

*Eupatorium album*, L., White-flowered Eupatorium, Old Seminary, Rapides.

*Eupatorium perfoliatum*, L., Boneset Thoroughwort, Old Seminary, Rapides.

*Eupatorium serotinum*, Michx., Late-blooming Eupatorium, Baton Rouge, East Baton Rouge.

*Eupatorium ivaefolia*, L., Ivy-leaved Eupatorium, Baton Rouge, East Baton Rouge.

*Eupatorium incarnatum*, Walt., Rose-flowered Eupatorium, Baton Rouge, East Baton Rouge.

*Eupatorium coronopifolium*, Willd., Buckshorn-leaved Eupatorium, Baton Rouge, East Baton Rouge.

*Eupatorium fœniculaceum*, Willd. (Introduced since the war), Fennel-leaved Eupatorium, Baton Rouge, East Baton Rouge.

*Eupatorium rotundifolium*, L., Round-leaved Eupatorium, Chicotville, St. Landry.

*Eupatorium parviflorum*, Ell., Small-flowered Eupatorium, Ville Platts, St. Landry.

*Eupatorium ageratoides*, L., Nettle-leaved Eupatorium, Old Seminary, Rapides.

*Eupatorium hyssopifolium*, L., Narrow-leaved Eupatorium.

*Mikania scandens*, Willd., Climbing Hempweed, Old Seminary, Rapides.

*Kuhnia eupatoroides*, L., Eupatorium-flowered Kuhnia, Old Seminary, Rapides.

*Stokesia cyanea*, L'Her., Violet-flowered Stokesia, Covington, St. Tammany.

*Achillea millefolia*, L., Common Yarrow, Baton Rouge, East Baton Rouge.

*Seriocarpus conyzoides*, Nees., White-topped Aster.

*Seriocarpus tortifolius*, Nees., Wave-leaved Seriocarpus.

*Diplopappus umbellatus*, Tor. and Gr., Double-bristled Aster, Old Seminary, Rapides.

*Diplopappus amygdalinus*, Tor. and Gr., Almond-leaved Bristled Aster.

*Eclipta longifolia*, Schrad., Long-leaved Eclipta, New Orleans, Orleans.

*Eclipta erecta*, L., Erect Eclipta, Baton Rouge, East Baton Rouge.

*Maruta Cotula*, D. C., Mayweed, Baton Rouge, East Baton Rouge.

*Erigeron Canadense*, L., Canada Fleabane Butterweed, Old Seminary, Rapides.

*Erigeron Philadelphicum*, L., Fleabane, Baton Rouge, East Baton Rouge.

*Erigeron strigosus*, Muhl., White-weed, Daisy, Ville Platte, St. Landry.

*Erigeron bellidifolium*, Muhl., Robin's Plantain, Grand Isle, Jefferson.

*Chrysanthemum parthenium*, Feverfew, cultivated.

*Chrysanthemum coronarium*, Garden Chrysanthemum, cultivated.

*Aster dumosus*, L., Bushy Aster, Baton Rouge, East Baton Rouge.

*Aster longifolius*, Lam, Long-leaved Aster, Covington, St. Tammany.

*Aster miser*, L., Starved Aster, Old Seminary, Rapides.

*Aster Baldwinii*, Tor. and Gray, Baldwin's Aster, Old Seminary, Rapides.

*Aster multiflorus*, Ait, Many-flowered Aster, Old Seminary, Rapides.

*Aster ericoides*, L., var. *villosus*, Woolly-stemmed Aster, Old Seminary, Rapides.

*Aster sericeus*, Vent, Silk-leaved Aster, Old Seminary, Rapides.

*Aster concolor*, L., One-colored Aster, Old Seminary, Rapides.

*Aster patens*, L., Spreading Aster, Old Seminary, Rapides.

*Aster adnatus*, Nutt, Adherent-leaved Aster, Old Seminary, Rapides.

*Aster squarrosus*, Walt, Ragged Aster, Old Seminary, Rapides.

*Aster laevis*, L., Smooth Aster.

*Aster simplex*, Willd., Willow-leaved Aster.

*Aster Tradescanti*, L., Tradescant's Aster.

*Aster diversifolius*, Michx, Varied-leaved Aster.

*Aster surculosus*, Michx, Sucker Aster.

*Aster ericoides*, L., Heath Aster.

*Solidago arguta*, Ait, Sharp-notched Golden Rod, Baton Rouge, East Baton Rouge.

*Solidago flavovirens*, Chapm., Yellow and Green-flowered Solidago, Old Seminary, Rapides.

*Solidago virgata*, Ell., Straight-stemmed Solidago, Old Seminary, Rapides.

*Solidago odora*, Ait, Sweet-scented Golden Rod, Old Seminary, Rapides.



*Solidago altissima*, L., Tall Golden Rod, Old Seminary, Rapides.  
*Solidago rugosa*, Willd, Rough-leaved Golden Rod, Old Seminary, Rapides.

*Solidago gigantea*, Ait, Gigantic Golden Rod, Port Hudson, East Feliciana.

*Gaillardia lanceolata*, Michx., Lance-leaved *Gaillardia*, Old Seminary, Rapides.

*Borrichia frutescens*, D. C., Sea Ox-Eye, Grand Isle, Jefferson.

*Helenium quadridentatum*, Lab., Four-toothed *Helenium*, Baton Rouge, East Baton Rouge.

*Helenium Seminariense*, N. Sp., Seminary *Helenium*, Old Seminary, Rapides.

*Helenium tenuifolium*, Nutt., Slender-leaved Bitter-weed, Old Seminary, Rapides.

*Chrysopsis trichophylla*, Nutt., Hairy-leaved Golden Aster, Old Seminary, Rapides.

*Chrysopsis argentea*, Nutt., Silver-leaved Golden Aster, Old Seminary, Rapides.

*Chrysopsis graminifolia*, Nutt., Grass-leaved Golden Aster, Chicotville, St. Landry.

*Spilanthes Nuttallii*, Tor. & Gray, Nuttall's *Spilanthes*, Baton Rouge, East Baton Rouge.

*Spilanthes repens*, Mich., Creeping *Spilanthes*, Old Seminary, Rapides.

*Baldwinia uniflora*, Ell., One-flowered *Baldwinia*, Ville Platte, St. Landry.

*Actinomeris helianthoides*, Nutt., Sunflower-like *Actinomeris*, Old Seminary, Rapides.

*Bidens frondosa*, L., Leafy Beggar's Tick, Old Seminary, Rapides.

*Bidens chrysanthemoides*, Mich., *Chrysanthemum*, Old Beggar's Tick, Old Seminary, Rapides.

*Coreopsis lanceolata*, L., Lance-leaved, *Coreopsis*, Old Seminary, Rapides.

*Coreopsis trichosperma*, Mich., Tickseed Sunflower, Old Seminary, Rapides.

*Coreopsis tripteris*, L., Tall *Coreopsis*, Chicotville, St. Landry.

*Coreopsis tinctoria*, L., Dyer's *Coreopsis*, cultivated.

*Coreopsis auriculata*, L., Ear-lobed *Coreopsis*, Chicotville, St. Landry.

*Rudbeckia triloba*, L., Three-lobed Coneflower, Covington, St. Tammany.

*Rudbeckia hirta*, L., Rough-leaved Coneflower, Old Seminary, Rapides.

*Rudbeckia maxima*, Nutt., Tall Coneflower, New Orleans, Orleans.

*Helianthus divaricatus*, L., Spreading Sunflower, Old Seminary, Rapides.

*Helianthus hirsutus*, Raf., Hairy-leaved *Helianthus*, Pontchatoula, Tangipahoa.

*Helianthus rigidus*, Desf., Stiff-leaved *Helianthus*, Old Seminary, Rapides.

*Helianthus angustifolius*, L., Narrow-leaved *Helianthus*, Old Seminary, Rapides.

*Helianthus annuus*, L., Common Sunflower, native of South America; cultivated.

*Helianthus tuberosus*, L., Jerusalem Artichoke, native of Brazil; cultivated.

*Zinnia elegans* var. *violacea*, Elegant *Zinnia*, native of Mexico, Cultivated.

*Zinnia pauciflora*, Few-flowered *Zinnia*, cultivated.

*Silphium asteriscus*, L., Starry *Silphium*, Old Seminary, Rapides.

*Polymnia udedalia*, L., Yellow Leaf-Cup, Baton Rouge, East Baton Rouge.

*Verbesina Virginica*, L., Virginia Crown Beard, Baton Rouge, East Baton Rouge.

*Senecio lobatus*, Pers., Lobe-leaved *Senecio*, Baton Rouge, East Baton Rouge.

*Soliva nasturtiifolia*, D. C., Cress-leaved *Soliva*, Baton Rouge, East Baton Rouge.

*Hieracium venosum*, L., Rattlesnake-weed, Clinton, East Feliciana.

*Hieracium Gronovii*, L., Hairy Hawkweed, Baton Rouge, East Baton Rouge.

*Krigia Virginica* Wild, Virginia Dwarf Dandelion, Baton Rouge, East Baton Rouge.

*Pyrhopappus Carolinianus*, D. C., Carolina False Dandelion, Baton Rouge, East Baton Rouge.

*Mulgedium Floridanum*, D. C., Florida Blue Lettuce, Baton Rouge, East Baton Rouge.

*Mulgedium accuminatum*, D. C., Point-leafed Blue Lettuce, Baton Rouge, East Baton Rouge.

*Erechthites hieracifolia*, Raf., Fireweed, Old Seminary, Rapides.

*Sonchus asper*, Willd., Spiny-leafed Sow Thistle, Baton Rouge, East Baton Rouge.

*Lactuca elongata*, Muhl, Wild Lettuce, Port Hudson, East Feliciana.

*Lactuca sativa*, L., Garden Lettuce, Cultivated.

*Dahlia variabilis*, Desf., Dahlia, native of Mexico, Cultivated.

*Centaurea Cyanus*, Blue bottle, native of Europe, Cultivated.

#### LOBELIACEÆ—*Lobelia Family.*

*Lobelia cardinalis*, L., Cardinal Flower, Old Seminary, Rapides.

*Lobelia glandulosa*, Walt., Glandular Lobelia, Amite City, Tangipahoa.

*Lobelia paludosa*, Nutt., Swamp Lobelia, Amite City, Tangipahoa.

*Lobelia Nuttallii*, R. & S., Nuttall's Lobelia, Old Seminary, Rapides.

*Lobelia spicata*, Lam., Spike-flowered Lobelia, Old Seminary, Rapides.

*Lobelia Claytonia*, Michx., Clayton's Lobelia, Old Seminary, Rapides.

*Lobelia amæna*, Michx., Fair-flowered Lobelia, Old Seminary, Rapides.

#### CAMPANULACEÆ—*Campanula Family.*

*Specularia perfoliata*, D. C., *Campanula perfoliata*, L., Venus Looking Glass, Baton Rouge, East Baton Rouge.

#### ERICACEÆ—*Heath Family.*

*Rhododendron multiflorum*, Tor., *Azalea nudiflora*, shrub, Purple Azalea, Amite River, East Baton Rouge.

*Vaccinium tenellum*, Ait., shrub, Tender-branched Blueberry, Covington, St. Tammany.

*Oxydendron arboreum*, D. C., *Andromeda arborea*, L., tree, Tree Sorrel, Old Seminary, Rapides.

#### AQUIFOLIACEÆ—*Holly Family.*

*Ilex opaca*, Ait., tree, American Holly, Baton Rouge, East Baton Rouge.



*Ilex Cassine*, L., shrub, Yaupon, Amite River, East Baton Rouge.

STYRACEÆ—*Storax Family*.

*Halesia tetraptera*, L., shrub, Snowdrop tree, Amite River, East Baton Rouge.

PLANTAGINACEÆ—*Plantain Family*.

*Plantago major*, L., Common Plantain, Baton Rouge, East Baton Rouge.

*Plantago Virginica*, L., Virginia Plantain, Baton Rouge, East Baton Rouge.

PLUMBAGINACEÆ—*Leadwort Family*.

*Statice lemonium*, L., Marsh Rosemary, Grand Isle, Jefferson.

PRIMULACEÆ—*Primrose Family*.

*Samolus floribundus*, Kunth, Many-flowered Samolus, Baton Rouge, East Baton Rouge.

*Lysimachia ciliata*, L., Fringed Loose-strife, Old Seminary, Rapides.

LENTIBULACEÆ—*Bladderwort Family*.

*Utricularia fibrosa*, Walt., Fibre-leafed Bladderwort, Amite City, Tangipahoa.

BIGNONIACEÆ—*Bignonia Family*.

*Bignonia capreolata*, L., vine, Cross Vine, Baton Rouge, East Baton Rouge.

*Tecoma radicans* Jus. *Bignonia radicans*, vine, Trumpet Flower, near Mississippi river, West Baton Rouge.

*Martynia proboscidea*, Glox., Unicorn Plant, Amite City, Tangipahoa.

*Catalpa bignonioides*, tree, Catalpa, Opelousas, St. Landry.

SCROPHULARIACEÆ—*Figwort Family*.

*Scrophularia nodosa*, L., Common Figwort, Baton Rouge, East Baton Rouge.

*Gratiola Virginiana*, L., Virginia Hedge Hyssop, Clinton, East Feliciana.

*Gratiola Floridana*, Nutt, Florida *Gratiola*, Amite City, Tangipahoa.

*Herpestis Monnieria*, Kunth, *Monierias' Herpestis*, New Orleans, Orleans.

*Herpestis amplexicaulis*, Pursh, Claspèd-leaved *Herpestis*, Covington, St. Tammany.

*Micranthemum orbiculatum*, Michx., Round-leafed *Micranthemum*, New Orleans, Orleans.

*Buchnera Americana*, L., Blue Hearts, Old Seminary, Rapides.

*Buchnera elongata*, Swartz, Long-leafed *Buchnera*, Pontchatoula, Tangipahoa.

*Verbascum Thapsus*, L., Mullein, Ville Platte, St. Landry.

*Dasystema quercifolia* Benth *Gerardia quercifolia*, L., Smooth False Foxglove, Chicotville, St. Landry.

*Mimulus alatus*, Ait., Stem-winged Monkey flower, Ville Platte, St. Landry.

*Penstemon digitalis*, var. *multiflorus*, Benth., Many-flowered *Penstemon*, Old Seminary, Rapides.

*Gerardia filifolia*, Nutt., Narrow-leafed *Gerardia*, Old Seminary, Rapides.

*Gerardia maritima*, Raf., Sea-side *Gerardia*, Grand Isle, Jefferson.

*Gerardia purpurea*, L., Purple *Gerardia*, Old Seminary, Rapides.

*Linaria Canadense*, Spreng, Wild Toad-Flax, Baton Rouge, East Baton Rouge.

*Veronica peregrina*, L., Neckweed, Baton Rouge, East Baton Rouge.

*Veronica agrestis*, Field Speedwell, Baton Rouge, East Baton Rouge.

#### ACANTHACEÆ—*Acanthus* Family.

*Diptheracanthus noctiflorus*, Nees., Nightflowering *Ruellia*, Ville Platte, St. Landry.

*Diptheracanthus strepens*, Nees., *Ruellia strepens*, Rough-leafed *Ruellia*, Baton Rouge, East Baton Rouge.

*Dianthera ovata*, Walt., Ovate-leafed Water willow, Washington, St. Landry.

*Dianthera ovata* var. *lanceolata*, Walt., Lance-leafed Water willow, Baton Rouge, East Baton Rouge.

VERBENACEÆ—*Vervain Family.*

*Lippia nodiflora*, Michx., Fog Fruit, Baton Rouge, East Baton Rouge.

*Lippia nodiflora*, var. *microphylla*, N. Var. Small-leaved Fog fruit Brashear City, St. Mary.

*Calycarpa Americana*, L., shrub, French Mulberry, Brashear City, St. Mary.

*Verbena Aubletia*, L., Aubletia's Verbena, Franklin, St. Mary.

*Verbena stricta*, Nutt., Mullein-leaved Verbena, near Mississippi river, West Baton Rouge.

*Verbena urticifolia*, L., Nettle-leaved Verbena, Baton Rouge, East Baton Rouge.

*Verbena officinalis*, L., Vervain, Baton Rouge, East Baton Rouge.

*Verbena chamædrifolia*, Scarlet Verbena, Cultivated.

*Verbena phlogiflora*, Crimson Verbena, Cultivated.

*Verbena incisa*, Cut-leaved Verbena, Cultivated.

*Lantana odorata*, Sweet scented Lantana, Cultivated.

*Lantana camara*, Vaulted-flowered Lantana, Native of South America, Cultivated.

LABIATÆ—*Mint Family.*

*Hyptis radiata*, Willd, Ray-flowered Hyptis, Opelousas, St. Landry.

*Mentha piperita*, L., Peppermint, Clinton, East Feliciana.

*Brunella vulgaris*, L., Common Self-Heal, Old Seminary, Rapides.

*Nepeta glechoma*, Benth, Ground Ivy, Baton Rouge, East Baton Rouge.

*Monarda punctata*, L., Spotted Horse mint, Old Seminary, Rapides.

*Monarda didyma*, L., Oswego Tea, Old Seminary, Rapides.

*Pycnanthemum muticum*, Pers., Beardless Mountain Mint, Old Seminary, Rapides.

*Pycnanthemum linifolium*, Pursh, Flax-leaved Mountain Mint, Old Seminary, Rapides.

*Salvia azurea*, L., Azure-flowered Sage, Old Seminary, Rapides.

*Salvia lyrata*, L., Lyre-leaved Sage, Baton Rouge, East Baton Rouge.

*Salvia fulgens*, Bright-colored Sage, native of Mexico, cultivated.

*Salvia splendens*, Crimson-flowered Sage, native of Mexico, cultivated.



*Calamintha nepeta*, Link, Basil Thyme, near the Mississippi river, West Baton Rouge.

*Leonotis nepetæfolia*, R. Br., Catnip-leafed Leonotis, Opelousas, St. Landry.

*Scutellarea integrifolia*, L., Entire-leafed Sculldcap, Clinton, East Feliciana.

*Physostegia Virginiana*, Benth, False Dragon Head, Amite City, Tangipahoa.

*Stachys aspera*, Michx, Rough Hedge Nettle, New Orleans, Orleans.

*Teucrium Canadense*, L., American Germander, Baton Rouge, East Baton Rouge.

*Rosemarinus officinalis*, Rosemary, cultivated.

*Lycopus Virginicus*, L., Water Hoarhound, Cheneyville, Rapides.

#### BORRAGINACEÆ—*Borraga Family.*

*Heliotropum Curassavicum*, L., Sea-coast Heliotrope, Lake Pontchartrain, Orleans.

*Heliophytum Indicum*, D. C., India Heliotrope, Baton Rouge, East Baton Rouge.

*Myositis verna*. Nutt var. *macrospermum*, Large-seeded Mouse Edr., Baton Rouge, East Baton Rouge.

#### HYDROPHYLLACEÆ—*Water-leaf Family.*

*Nemophila microcalyx*, Tesh & Meyer, Small-calyxed Nemophila, Baton Rouge, East Baton Rouge.

#### HYDROLEACEÆ—*Hydrolea Family.*

*Hydrolea quadrivalvis*, Walt, Four-valved Hydrolea, Amite City, Tangipahoa.

*Hydrolea leptocaulis*, N. Sp., Smooth-stemmed Hydrolea, Washington, St. Landry.

*Hydrolea Ludoviciana*, N. Sp., Louisiana Hydrolea, Bayou Portage, St. Mary.

*Nama Jamaicensis*, L., Jamaica Nama, Baton Rouge, East Baton Rouge.

#### POLEMONIACEÆ—*Polemonium Family.*

*Phlox Drummondii*, Drummond's Phlox—Cultivated.

*Phlox glaberrima*, Ohio Phlox—Cultivated.

*Pyxidanthera barbulata*, Michx, Bearded *Pyxidanthera*.

CONVOLVULACEÆ—*Convolvulus Family.*

*Phrabitis nil*, Chois., Morning Glory, Baton Rouge, East Baton Rouge.

*Phrabitis hispida*, Chois., Hairy Morning Glory, Baton Rouge, East Baton Rouge.

*Ipomœa tamnifolia*, L., Cut-leafed *Ipomœa*, Ville Platte, St. Landry.

*Ipomœa lacunosa*, L., Ditch *Ipomœa*, Baton Rouge, East Baton Rouge.

*Ipomœa commutata*, Roem. and Shr., Altered *Ipomœa*, Baton Rouge, East Baton Rouge.

*Ipomœa pes-capra*, Sweet, Goat-foot-leafed *Ipomœa*, Grand Isle, Jefferson.

*Ipomœa sagittifolia*, Bot. Reg., Arrow-leafed *Ipomœa*, Mandeville, St. Tammany.

*Ipomœa pandurata*, Meyer, Wild Potato Vine, Old Seminary, Rapides.

*Batatas littoralis*, Chois., Seacoast Wild Potato, Grand Isle, Jefferson.

*Cuscuta Gronovii*, Willd., American Dodder, Washington, St. Landry.

*Dichondra repens*, Forst., var. *Caroliniensis*, Chois., Carolina *Dichondra*, Baton Rouge, East Baton Rouge.

SOLANACEÆ—*Nightshade Family.*

*Solanum nigrum*, L., Common Nightshade, Baton Rouge, East Baton Rouge.

*Solanum Caroliniense*, L., Horse nettle, Baton Rouge, East Baton Rouge.

*Solanum aculeatissimum*. Jaq., Prickly leafed Nightshade, Carrollton, Orleans.

*Solanum Pseudo capsicum*, Jerusalem Cherry, Comite river, East Feliciana.

*Physalis viscosa*, L., Clammy-leafed Ground Cherry, Port Hudson, East Feliciana.

*Physalis pubescens*, L., Hairy-leafed Ground Cherry, New Orleans, Orleans.

*Physalis lanceolata*, Michx., Lance-leafed Ground Cherry, Clinton, East Feliciana.

*Datura Stramonium*, L., Thornapple, Baton Rouge, East Baton Rouge.

*Nicotiana tabacum*, L., Tobacco, Cultivated.

*Nicotiana longiflora* (?), Long-leafed Nicotiana, Brashear City, Introduced.

*Lycopersicum esculentum*, Mill., Tomato, Cultivated.

*Petunia violacea*, Violet Petunia, Native of Brazil, Cultivated.

*Capsicum annuum*, L., Red Pepper, Native of India, Cultivated.

#### GENTIANACEÆ—*Gentian Family.*

*Gentiana ochroleuca*, Froel, Straw-colored Gentian, Old Seminary, Rapides.

*Sabbatia stellaris*, Pursh., Star-flowered Sabbatia, Grand Isle, Jefferson.

*Sabbatia gracilis*, Pursh., Slender Sabbatia, Pontchatoula, Tangipahoa.

*Sabbatia angularis*, Pursh, American Centaury, Chicotville, St. Landry.

*Sabbatia calycosa*, Pursh., Cup-flowered Sabbatia, Grand Isle, Jefferson.

*Sabbatia nana*, N., species, Dwarf Sabbatia, Grand Isle, Jefferson.

*Sabbatia oligophylla*, N., species, Sparse-leafed Sabbatia, Chicotville, St. Landry.

*Eustoma exaltatum*, Grisebe, High-stemmed Eustoma, Grand Isle, Jefferson.

#### APOCYNACEÆ—*Dogbane Family.*

*Fosteronia difformis*, D. C., vine, Unsightly Fosteronia, Old Seminary, Rapides.

*Vinca major*, Great Periwinkle, Native of Europe, Cultivated.

*Nerium Oleander*, shrub, Rose Bay Tree, Native of Palestine, Cultivated.

#### ASCLEPIADACEÆ—*Milkweed Family.*

*Asclepias tuberosa*, L, Butterfly-weed, Old Seminary, Rapides.



*Asclepias verticillata*, L., Whorl-leafed *Asclepias*, Pontchatoula, Tangipahoa.

*Asclepias perennis*, Willd., Perennial *Asclepias*, Franklin, St. Mary.

*Asclepias pauperula*, Michx., Poor *Asclepias*, Covington, St. Tammany.

*Asclepias obtusifolia*, Michx., Obtuse-leafed *Asclepias*, Old Seminary, Rapides.

*Seutera maritima* Decais. *Lyons maritima*, Ell., Seaside *Seutera*, Grand Isle, Jefferson.

OLEACEÆ—*Olive Family.*

*Olea fragrans*, tree, Fragrant Olive tree, native of China, cultivated.

*Syringa vulgaris*, tree, Common Lilac, native of Hungary, cultivated.

*Forsythia viridissima*, Green-leafed *Forsythia*, native of China, cultivated.

ARISTOLOCHACEÆ—*Birthwort Family.*

*Aristolochia serpentaria*, L. *A. hastata* Nutt., Snake Birthwort, Amite river, East Baton Rouge.

NYCTAGINACEÆ—*Four O'Clock Family.*

*Mirabilis Jalapa*, Common *Mirabilis*, native of West Indies; cultivated.

PHYTOLACCACEÆ—*Pokeweed Family.*

*Phytolacca decandra*, L., Pokeweed, Baton Rouge, East Baton Rouge.

CHENOPODIACEÆ—*Goosefoot Family.*

*Chenopodium album*, L., Pigweed, Franklin, St. Mary.

*Chenopodium anthelminticum*, L., Worm seed, Baton Rouge, East Baton Rouge.

*Sueda maritima*, Moq., Seaside *Chenopodium*, Grand Isle, Jefferson.

*Salicornia ambigua*, Michx., Samphire, Grand Isle, Jefferson.

AMARANTACEÆ—*Amaranth Family.*

*Amarantus spinosus*, L., Thorny *Amaranth*, Old Seminary, Rapides.

*Amarantus hybridus*, L., Hybrid Amaranth, Baton Rouge, East Baton Rouge.

*Amarantus chlorostachys*, Willd., Green-flowered Amaranth, Grand Isle, Jefferson.

*Alternanthera achyrantha*, R. Br., Chaff-flowered Alternanthera, New Orleans, Orleans.

*Iresine celosoides*, Ell. I. diffusa H. and B., Cockscomb Iresine, Baton Rouge, East Baton Rouge.

*Gomphrena globosa*, L., Globe Amaranth, native of India cultivated.

*Celosia cristata*, Cockscomb, native of Japan, cultivated.

*Amarantus paniculatus*, Panicked Amaranth, native of South America, cultivated.

POLYGONACEÆ—*Buckwheat Family.*

*Brunnichia cirrhosa*, Banks, vine, Tendril-branched Brunnichia, Baton Rouge, East Baton Rouge.

*Rumex pulcher*, L., Fair-leafed Dock, Baton Rouge, East Baton Rouge.

*Rumex crispus*, L., Crip-leafed Dock, Baton Rouge, East Baton Rouge.

*Polygonum aviculare*, L., Goose grass, Knot grass, Baton Rouge, East Baton Rouge.

*Polygonum incarnatum*, Ell., Rose-flowered Polygonum, Brashear City, St. Mary.

*Polygonum hydropiperoides*, Michx., Wild Water Pepper, Baton Rouge, East Baton Rouge.

*Polygonum amphibium*, L., var. *aquaticum*, Water Persicaria, Baton Rouge, East Baton Rouge.

*Polygonum densiflorum*, Meis., Close-flowered Polygonum, Washington, St. Landry.

*Polygonum setaceum*, Baldw., Bristle-sheathed Polygonum, Baton Rouge, East Baton Rouge.

*Polygonum Virginianum*, L., Virginia Polygonum, Washington, St. Landry.

*Polygonum acre*, Kunth, Wild Smartweed, Old Seminary, Rapides.

*Polygonum Pennsylvanicum*, L., Pennsylvania Knotgrass, Old Seminary, Rapides.

*Polygonum dumetorum*, L., Climbing *Polygonum*, Cheneyville, Rapides.

LAURACEÆ—*Laurel Family*.

*Sassafras officinale*, Nees, *Laurus Sassafras*, L. tree, *Sassafras*, Baton Rouge, East Baton Rouge.

LORANTHACEÆ—*Mistletoe Family*.

*Phoradendron flavescens*, Nutt. *Viscum flavescens*, shrub, Mistletoe, Baton Rouge, East Baton Rouge.

SAURURACEÆ—*Lizard's Tail Family*.

*Saururus cernuus*, L., Lizard's Tail, near Mississippi river, West Baton Rouge.

CALLITRICHACEÆ—*Water Starwort Family*.

*Callitriche pedunculosa*, Nutt, Water Starwort, Baton Rouge, East Baton Rouge.

EUPHORBIACEÆ—*Spurge Family*.

*Euphorbia corollata*, L., Large flowering Spurge, Old Seminary, Rapides.

*Euphorbia hypericifolia*, L., Large spotted Spurge, Baton Rouge, East Baton Rouge.

*Euphorbia hypericifolia*, var. *communis*, Common spotted Spurge, Port Hudson, East Feliciana.

*Euphorbia herniarioides*, Nutt, Small-leafed Spurge, Baton Rouge, East Baton Rouge.

*Euphorbia Ludoviciana*, N. Sp., Louisiana Spurge, Washington, St. Landry.

*Euphorbia Meganæsos*, N. Sp., Grand Isle Spurge, Grand Isle, Jefferson.

*Acalypha gracilens*, Gray, Slender three-seeded Mercury, Old Seminary, Rapides.

*Acalypha Caroliniana*, Walt., Carolina, Three-seeded Mercury, Baton Rouge, East Baton Rouge.

*Tragia urens*, L., Stinging *Tragia*, Old Seminary, Rapides.

*Stillingia ligustrina*, Michx., Privet-leafed *Stillingia*, Clinton, East Feliciana.



*Stillingia Sylvatica*, L., Queen's Delight, Old Seminary, Rapides.  
*Croton Elliottii*, Chapm., Elliott's Croton, Old Seminary, Rapides.  
*Ricinus communis*, L., Castor Oil Plant, Ville Platte, St. Landry.

BATIDACEÆ—*Batis Family.*

*Batis maritima*, L., Seaside Batis, Grand Isle, Jefferson.

URTICACEÆ—*Nettle Family.*

*Urtica gracilis*, Ait., Slender-stemmed Nettle, Chicotville, St. Landry.

*Urtica dioica*, L., Common Nettle, Baton Rouge, East Baton Rouge.

*Urtica purpurascens*, Nutt., Purple Nettle, Baton Rouge, East Baton Rouge.

*Parietaria debilis*, Forst., Feeble-stemmed Pellitory, Baton Rouge, East Baton Rouge.

MORACEÆ—*Mulberry Family.*

*Morus rubra*, L., tree, Red Mulberry, Baton Rouge, East Baton Rouge.

*Morus nigra*, Vent., tree, Black Mulberry, native of China, introduced.

*Maclura aurantiaca*, Nutt., tree, Osage Orange, native of Arkansas, introduced.

*Ficus carica*, tree, Fig Tree, native of Asia, introduced.

ULMACEÆ—*Elm Family.*

*Ulmus alata*, Michx., tree, Whahoo, Baton Rouge, East Baton Rouge.

PLATANACEÆ—*Plane Tree Family.*

*Platanus occidentalis*, L., tree, Plane Tree, Sycamore, Washington, St. Landry.

JUGLANDACEÆ—*Walnut Family.*

*Juglans nigra*, L., tree, Black Walnut, Baton Rouge, East Baton Rouge.

*Carya amara*, Nutt., tree, Bitter Nut, Grosse Tete Railroad, West Baton Rouge.

*Carya glabra*, Tor., tree, Pignut, Baton Rouge, East Baton Rouge.

*Carya alba*, Nutt, tree, Shell-bark Hickory, Baton Rouge, East Baton Rouge.

CUPULIFERÆ—*Oak Family.*

*Quercus phellos*, L., tree, Willow Oak, Baton Rouge, East Baton Rouge.

*Quercus aquatica*, Catesby, tree, Water Oak, Old Seminary, Rapides.

*Quercus aquatica*, Catesty, var. *hybrida*, tree, Hybrid Water Oak, Baton Rouge, East Baton Rouge.

*Quercus tinctoria*, Bart., tree, Black Oak, Baton Rouge, East Baton Rouge.

*Quercus falcata*, Michx., tree, Spanish Oak, Baton Rouge, East Baton Rouge.

*Quercus obtusifolia*, Michx., tree, Post Oak, Baton Rouge, East Baton Rouge.

*Quercus alba*, L., tree, White Oak, Old Seminary, Rapides.

*Quercus prinus*, L., tree, Swamp Chestnut Oak, Baton Rouge, East Baton Rouge.

*Quercus nigra*, L., tree, Black Jack, Old Seminary, Rapides.

*Quercus virens*, Ait., tree, Live Oak, Brashear City, St. Mary.

*Castanea pumila*, Michx., tree, Chinquapin, Opelousas, St. Landry.

*Fagus ferruginea*, Ait., tree, American Beech, Baton Rouge, East Baton Rouge.

SALICACEÆ—*Willow Family.*

*Populus angulata*, Ait., tree, Cottonwood, Baton Rouge, East Baton Rouge.

*Populus dilatata*, tree, Lombardy Poplar, Native of Italy, Introduced.

*Salix nigra*, Marsh., tree, Black Willow, Baton Rouge, East Baton Rouge.

*Salix Babylonica*, tree, Weeping Willow, Native of the East, Introduced.

CONIFERÆ—*Pine Family.*

*Pinus Australis*, Michx., tree, Long-leafed Pine, Old Seminary, Rapides.

*Pinus taeda*, L., tree, Old-field Pine, Old Seminary, Rapides.

*Pinus glabra*, Walt., tree, Smooth Pine, Amite River, East Baton Rouge.

*Pinus inops*, Ait., tree, Scrub Pine, Clinton, East Feliciana.

*Taxodium distichum*, Rich., tree, Cypress, Baton Rouge, East Baton Rouge.

*Juniperus Virginianus*, L., tree, Red Cedar, Baton Rouge, East Baton Rouge.

*Cupressus thyoides*, L., tree, White Cedar, Old Seminary, Rapides.

*Thuja occidentalis*, L., tree, Arbor Vitae, Native of North Carolina, Introduced.

*Thuja orientalis*, shrub, Oriental Arbor Vitae, Native of China, Cultivated.

*Taxus Hibernica*, shrub, Irish Yew, Native of Ireland, Cultivated.

## MONOCOTYLEDONOUS PLANTS.

### PALME—*Palms*.

*Sabal Adansonii*, Guerns., Dwarf Palmetto, New Orleans, Orleans.

*Sabal Palmetto*, R. & S., Tree Palmetto, Grand Isle, Jefferson.

### ARACEÆ—*Arum Family*.

*Peltandra Virginica*, Raf., Virginia Arrow Arum, Amite river, East Baton Rouge.

### LEMNACEÆ—*Duckweed Family*.

*Lemna minor*, L., Small Duckweed, New Orleans, Orleans.

*Lemna polyrhiza*, L., Many-rooted Duckweed, New Orleans, Orleans.

*Lemna Torreyi* Austin, Torrey's Lemna, Washington, St. Landry.

### TYPHACEÆ—*Cat Tail Family*.

*Typha latifolia*, L., Cat-tail, Baton Rouge, East Baton Rouge.

### ALISMACEÆ—*Water Plantain Family*.

*Sagittaria falcata*, Pursh., Scythe-leaved Arrow-head, Lake Pontchartrain, Orleans.

*Sagittaria heterophylla*, Pursh., Unequal-leaved Arrow-head, Brahear City, St. Mary.



*Sagittaria variabilis*, Engelm., Varied-leaved Arrow-head, Franklin, St. Mary.

*Sagittaria simplex*, Pursh., Simple-leaved Arrow-head, Prairie lakes, St. Landry.

ORCHIDACEÆ—*Orchis Family.*

*Platanthera ciliaris* Lind. *Orchis ciliaris*, L., Fringe-flowered False Orchis, Pontchatoula, Tangipahoa.

*Habenaria Michauxii*, Nutt., Michaux' Orchis, Old Seminary, Rapides.

*Spiranthes gracilis*, Slender-twisted Orchis, Old Seminary, Rapides.

CANNACEÆ—*Canna Family*

*Canna Indica*, L., Indian Shot Plant, L., cultivated.

AMARYLLIDACEÆ—*Amaryllis Family.*

*Hypoxis erecta*, L., Erect Star Grass, Amite City, Tangipahoa.

*Hypoxis Juncea*, Smith, Rushy Star Grass, Grand Isle, Jefferson.

*Narcissus*, *Tazetta*, *Narcissus*, native of Spain, cultivated.

HÆMODORACEÆ—*Bloodwort Family.*

*Aletris aurea*, Walt., Golden-flowered Aletris, Old Seminary, Rapides.

BROMELIACEÆ—*Pine Apple Family.*

*Tillandsia usneoides*, L., Long Moss, near Mississippi river, West Baton Rouge.

IRIDACEÆ—*Iris Family.*

*Iris tripetala*, Walt., Three-petaled Iris, Old Seminary, Rapides.

*Iris cuprea*, L., Copper-flowered Iris, Baton Rouge, East Baton Rouge.

*Iris Florentina*, Sweet Flag, native of Italy, cultivated.

SMILACEÆ—*Smilax Family.*

*Smilax tamnoides*, L., vine, Green Briar, Baton Rouge, East Baton Rouge.

*Smilax pseudo-China*, L., vine, False Chinese Smilax, Baton Rouge, East Baton Rouge.

*Trillium sessile*, L., Stalkless Three-leafed Nightshade, Amite river, East Baton Rouge.

LILIACEÆ—*Lily Family.*

*Lilium Lockettii*, N. Sp., Lockett's Lily, Lake St. Charles, Calcasieu.

*Lilium candidum*, White Lily, native of Levant, cultivated.

*Lilium tigrinum*, Tiger-spotted Lily, native of China, cultivated.

*Lilium Carolinianum*, Orange-flowered Lily, Baton Rouge, East Baton Rouge.

*Yucca filamentosa*, L., Bear Grass, Old Seminary, Rapides.

*Allium Canadense*, Kalm, Wild Onion, near the Mississippi river, West Baton Rouge.

*Gladiolus Byzantinus*, Turkish Gladiolus, native of the Levant, cultivated.

*Gladiolus Psittacinus*, Corn Flag, native of South of Europe, cultivated.

MELANTHACEÆ—*Colchicum Family.*

*Melanthium Virginicum*, L., Bunch Flower, Amite City, Tangipahoa.

*Chamælirium luteum*, Gray Helonias dioica, Blazing Star.

JUNCACEÆ—*Rush Family.*

*Juncus scirpoides*, Lam., Scirpoid Rush, Baton Rouge, East Baton Rouge.

*Juncus maritimus*, Lam., Sea-side Bullrush, Baton Rouge, East Baton Rouge.

*Juncus effusus*, L., Soft Rush.

*Juncus tenuis*, Willd., Slender Rush, Baton Rouge, East Baton Rouge.

*Juncus marginatus*, Willd., Broad-brimmed Rush, Marsh Prairie, St. Mary.

*Juncus setaceus*, Rostk, Bristly Rush, Baton Rouge, East Baton Rouge.

*Juncus buffonius*, L., Toad Rush, Baton Rouge, East Baton Rouge.

PONTEDERIACEÆ—*Pickerel Weed Family.*

*Pontederia cordata*, L., Wampee, Pickerel Weed, New Orleans, Orleans.

*Schollera graminea*, Willd, Grass-leafed Schollera, Brashear City, St. Mary.

COMMELYNACEÆ—*Spiderwort Family.*

*Commelyna communis*, L., Common Dayflower, Opelousas, St. Landry.

*Commelyna Virginica*, Virginia Dayflower, Baton Rouge, East Baton Rouge.

*Commelyna Virginica*, var. *angustifolia*, Ell., Narrow-leafed Dayflower, New Orleans, Orleans.

*Commelyna erecta*, L, Erect Dayflower, Old Seminary, Rapides.

*Tradescantia Virginiana*, L., Virginia Spiderwort, Old Seminary, Rapides.

XYRIDACEÆ—*Yellow-eyed Grass Family.*

*Xyris difformis*, Chapm., Unsightly Yellow-eyed Grass, Covington, St. Tammany.

*Xyris Elliotii*, Chapm., Elliott's Yellow-eyed Grass, Old Seminary, Rapides.

*Xyris elata*, Chapm., High-stemmed Yellow-eyed Grass, Amite city, Tangipahoa.

## ERIOCAULONACEÆ.

*Eriocaulon decangulare*, L., Pipewort, Covington, St. Tammany.

CYPRACEÆ—*Sedge Family.*

*Cyperus vegetus*, Willd, Stout-stemmed Cyperus.

*Cyperus strigosus*, L., Bristle-spiked Galingale, Ville Platte, St. Landry.

*Cyperus articulatus*, L., Jointed Cyperus, Franklin, St. Mary.

*Cyperus rotundus*, L. C., hydra, Michx, Nut Grass, Baton Rouge, East Baton Rouge.

*Cyperus compressus*, L., Flat-stemmed Cyperus, Franklin, St. Mary.



*Cyperus flavescens*, L., Yellow Cyperus, Clinton, East Feliciana.

*Cyperus ovularis*, Tor., Egg-spiked Cyperus, Opelousas, St. Landry.

*Cyperus tetragonus*, Ell, Four-angled Cyperus, Opelousas, St. Landry.

*Cyperus Gatesii*, Tor., Gates' Cyperus, Opelousas, St. Landry.

*Cyperus virens*, Michx., Evergreen Cyperus, Opelousas, St. Landry.

*Cyperus speciosus*, Vahl., Showy Cyperus, Bayou Portage, St. Mary.

*Cyperus Haspan*, L., Haspan's Cyperus, Old Seminary, Rapides.

*Cyperus erythrorhizos*, Muhl., Red-rooted Cyperus, Baton Rouge, East Baton Rouge.

*Rhynchospora corniculata*, Tor., Horned Beak Rush, Baton Rouge, East Baton Rouge.

*Rhynchospora glomerata*, Vahl, Bushy Rush, Baton Rouge, East Baton Rouge.

*Rhynchospora cymosa*, Nutt, Cyme-flowered Rush, Baton Rouge, East Baton Rouge.

*Rhynchospora inexpansa*, Vahl, Unexpanded Rush, Baton Rouge, East Baton Rouge.

*Rhynchospora paniculata*, Tor., Panicle Rush, Old Seminary, Rapides.

*Eleocharis simplex*, Tor., Simple Spike Rush, Baton Rouge, East Baton Rouge.

*Eleocharis tuberculosa*, R. Br., Tuberculated Rush, Bayou Portage, St. Mary.

*Eleocharis microcarpa*, Tor., Small-fruited Rush, Bayou Portage, St. Mary.

*Eleocharis pygmæa*, Tor., Pigmy Rush, Bayou Portage, St. Mary.

*Eleocharis albida*, Tor., Whitish Rush, Bayou Portage, St. Mary.

*Eleocharis obtusa*, R. Br., Obtuse Rush, Baton Rouge, East Baton Rouge.

*Eleocharis palustris*, R. Br., Swamp Rush, Baton Rouge, East Baton Rouge.

*Dichromena leucocephala*, Michx., White-flowered Dichromena, Grand Isle, Jefferson.

*Kyllingia palustris*, Michx., Swamp Kyllingia, Clinton, East Feliciana.

*Mariscus retrofractus*, Vahl, Inversely-tapering Mariscus, Baton Rouge, East Baton Rouge.

*Fimbristylis spadicea*, Vahl, Chestnut-brown *Fimbristylis*, Bayou Portage, St. Mary.

*Fimbristylis autumnalis*, F. & Sch., Autumnal *Fimbristylis*, Port Hudson, East Feliciana.

*Scirpus eriophorum*, Michx., Woolly Bullrush.

*Scirpus palustris*, L., Swamp Bullrush, Berwick's Bay, St. Mary.

*Trichelostylis autumnalis*, Roem. & Shultz, Autumnal *Trichelostylis*, Baton Rouge, East Baton Rouge.

*Fuirena squarrosa*, Michx., Coarse *Fuirena*, Baton Rouge, East Baton Rouge.

*Carex lupulina*, Muhl., Lupine Sedge, Baton Rouge, East Baton Rouge.

*Carex glaucescens*, Ell., Pale-green Sedge, Marsh Prairie, St. Mary.

*Carex staminea*, Willd., Staminate Sedge, Marsh Prairie, St. Mary.

*Carex staminea*, var. *festucea*, Shrb., Fescue-grass Sedge.

*Carex retroflexa*, Muhl., Inverse-reflexed Sedge, Baton Rouge, East Baton Rouge.

*Carex stenolepis*, Tor., Narrow-scaled Sedge, Baton Rouge, East Baton Rouge.

*Carex crux-corvi*, Shuttleworth, Crow-legged Sedge, Cheneyville, Rapides.

#### GRAMINEÆ—*Grass Family.*

*Leersia Virginica*, Willd., Virginia Rice-grass, Old Seminary, Rapides.

*Leersia Centicularis*, Michx., False Rice-grass, Old Seminary, Rapides.

*Agrostis perennans*, Gray, Thin-Grass, Old Seminary, Rapides.

*Agrostis scabra*, Willd., Hair-Grass, Old Seminary, Rapides.

*Cynodon Dactylon*, Pers., Bermuda-Grass, Baton Rouge, East Baton Rouge.

*Phleum pratense*, L., Timothy, Baton Rouge, East Baton Rouge.

*Poa pratensis*, L., Orchard-grass, Baton Rouge, East Baton Rouge.

*Poa annua*, L., Low Spear-grass, Baton Rouge, East Baton Rouge.

*Poa flexuosa*, Muhl., Slender-stemmed *Poa*, Amite river, East Baton Rouge.

*Aristida purpurascens*, Poir., Triple-awned *Aristida*, Old Seminary, Rapides.

*Aristida gracilis*, Ell., Slender *Aristida*, Old Seminary, Rapides.

*Aristida virgata*, Trin., Strait-stemmed *Aristida*, Old Seminary, Rapides.

*Muhlenbergia diffusa*, Schreb., Drop-seed, Nimble-Will, Old Seminary, Rapides.

*Eatonia Pennsylvanica*, Gray, Pennsylvania *Eatonia*, Old Seminary, Rapides.

*Eatonia obtusata*, Gray, Obtuse-spiked *Eatonia*, Old Seminary, Rapides.

*Vilfa vaginæflora*, Tor., Sheath-flowered *Vilfa*, Cheneyville, Rapides.

*Melica mutica*, Walt., Beardless Melic-grass, Baton Rouge, East Baton Rouge.

*Eragrostis ciliaris*, Link., Fringed *Eragrostis*, Port Hudson, East Feliciana.

*Eragrostis oxylepis*, Tor., Huskpointed *Eragrostis*, Grand Isle, Jefferson.

*Eragrostis reptans*, Nees., Creeping *Eragrostis*, Baton Rouge, East Baton Rouge.

*Eragrostis pectinacea*, Gray, Comb-spiked *Eragrostis*, Old Seminary, Rapides.

*Eragrostis capillaris*, Nees, Fine-branched *Eragrostis*, Old Seminary, Rapides.

*Eragrostis megastachya* Link var. *pecoides*, Beauv, Large-spiked *Eragrostis*, Old Seminary, Rapides.

*Eragrostis Purshii*, Schrad, Pursh's *Eragrostis*, Baton Rouge, East Baton Rouge.

*Eleusine Indica*, Gaert, Crab grass, Yard grass, Baton Rouge, East Baton Rouge.

*Paspalum digitaria*, Poir, Finger-spiked *Paspalum*, Baton Rouge, East Baton Rouge.

*Paspalum læve*, Michx., Smooth *Paspalum*, Baton Rouge, East Baton Rouge.

*Paspalum ciliatifolia*, Michx., Fringe-leafed *Paspalum*, Old Seminary, Rapides.

*Paspalum racemulosum*, Nutt., Racemed *Paspalum*, Old Seminary, Rapides.

*Paspalum præcox*, Walt., Early *Paspalum*, near Mississippi river, West Baton Rouge.



*Paspalum fluitans*, Kunth, Floating *Paspalum*, Cheneyville, Rapides.

*Sporobolus junceus*, Kunth, Rush-leaved Drop-seed grass, Old Seminary, Rapides.

*Sporobolus Indicus*, Brown, Indian Drop-seed grass, Old Seminary, Rapides.

*Setaria glauca*, Beauv, Pale Green *Setaria*, Baton Rouge, East Baton Rouge.

*Digitaria glabra*, P., *glabrum*, Gaud., Smooth *Digitaria*, Baton Rouge, East Baton Rouge.

*Panicum sanguinale*, L., Finger grass, Crab grass, Baton Rouge, East Baton Rouge.

*Panicum sanguinale*, L., var. *villosum*, Ell, Hairy Finger grass, Baton Rouge, East Baton Rouge.

*Panicum filiforme*, L., Fine-stemmed Finger grass, Baton Rouge, East Baton Rouge.

*Panicum dichotomum*, L., var. *villosum*, Ell., Woolly two-branched Panic grass, Old Seminary, Rapides.

*Panicum dichotomum*, L., var. *lanuginosum*, Ell., Downy two-branched Panic grass, Old Seminary, Rapides.

*Panicum dichotomum*, L., var. *barbulatum*, Michx., Bearded two-branched Panic grass, Old Seminary, Rapides.

*Panicum dichotomum*, L., var. *ramulosum*, Michx., Branching two-branched Panic grass, Old Seminary, Rapides.

*Panicum dichotomum*, L., var. *nitidum*, Ell., Glossy two-branched Panic grass, Old Seminary, Rapides.

*Panicum dichotomum*, L., var. *pubescens*, Ell., Hairy two-branched Panic grass, Old Seminary, Rapides.

*Panicum virgatus*, Ell., Straight-stemmed Panic grass, Bayou Portage, St. Mary.

*Panicum hians*, Ell., Disjointed Panic grass, Amite River, East Baton Rouge.

*Panicum gymnocarpum*, Ell., Nude-fruited Panic grass, Baton Rouge, East Baton Rouge.

*Panicum capillare*, L., Hair-branched Panic grass, Baton Rouge, East Baton Rouge.

*Panicum Walteri*, Ell., Walter's Panic grass, Baton Rouge, East Baton Rouge.

*Panicum agrostoides*, Spreng, Bentgrass Panic grass, Old Seminary, Rapides.

*Panicum hirtellum*, L., Rough-stemmed Panic grass, Old Seminary, Rapides.

*Panicum microcarpon*, Muhl, Small-fruited Panic grass, Old Seminary, Rapides.

*Panicum verucosum*, Muhl, Wart-fruited Panic grass, Old Seminary, Rapides.

*Panicum viscidum*, Ell., Clammy Panic grass, Old Seminary, Rapides.

*Panicum rufum*, Kunth, Brown-haired Panic grass, Old Seminary, Rapides.

*Panicum capillare*, L., var. *geniculatum*, Muhl, Knee-jointed Panic grass, Old Seminary, Rapides.

*Panicum crusgalli*, L., Barnyard grass, Baton Rouge, East Baton Rouge.

*Panicum crusgalli*, L., var. *longisetum*, Long-bristled Barnyard grass, Pontchartrain, Orleans.

*Uniola gracilis*, Michx., Slender Uniola, Ville Platte, St. Landry.

*Uniola latifolia*, Michx., Broad-leaved Uniola, Old Seminary, Rapides.

*Spartina juncea*, Willd., Rush-leaved Marsh grass, Lake Pontchartrain, Orleans.

*Chloris petraei*, Stony Chloris, Grand Isle, Jefferson.

*Stenotaphrum Americanum* Schrank, American *Stenotaphrum*, Grand Isle, Jefferson.

*Brizopyrum spicatum*, Hook., var. *macrostachyon*, Large-spiked *Brizopyrum*, Grand Isle, Jefferson.

*Coix lachryma*, Lachrymal Coix, Bayou Portage, St. Mary.

*Sorghum nutans*, Gray, Indian grass, Wood grass, Old Seminary, Rapides.

*Sorghum Halapense*, Pers., Cuba grass, Lake Pontchartrain, Orleans.

*Leptochloa mucronata*, Kunth, Leaf-pointed *Leptochloa*, Baton Rouge, East Baton Rouge.

*Andropogon Virginicus*, L., Virginia Beard-grass, Old Seminary, Rapides.

*Andropogon scoparius*, Michx., Broom-grass, Old Seminary, Rapides.

*Andropogon Elliottii*, Chapm., Elliott's Beard-grass, Old Seminary, Rapides.

*Andropogon argenteus*, Ell., Silver-spiked Beard-grass, Old Seminary, Rapides.

*Glyceria aquatica*, Smith, Reed Meadow grass, Old Seminary, Rapides.

*Glyceria obtusa*, Trin., Obtuse-spiked Meadow-grass, Old Seminary, Rapides.

*Erianthus alopecuroides*, Ell., Woolly Beard-grass, Old Seminary, Rapides.

*Cinna arundinacea*, L., Wood Reed-grass, Old Seminary, Rapides.

*Festuca pratensis*, Huds., Meadow Fescue grass, Baton Rouge, East Baton Rouge.

*Festuca myurus*, L., Knotty Fescue grass, Baton Rouge, East Baton Rouge.

*Alopecurus geniculatus*, L., Foxtail, Baton Rouge, East Baton Rouge.

*Hordeum pratense*, L., Meadow Barlow, Baton Rouge, East Baton Rouge.

*Ctenium Americanum* Spreng, American Toothache grass, Pontchatoula, Tangipahoa.

*Cenchrus tribuloides*, L., Burr-grass, Grand Isle, Jefferson.

*Cenchrus echinatus*, L., Hedgehog grass, Cheneyville, Rapides.

*Arundinaria gigantea*, Chapm, Cane, Baton Rouge, East Baton Rouge.

*Avena elatior*, L., High-stemmed Oats, Baton Rouge, East Baton Rouge.

*Avena sativa*, L., Common Oats, Baton Rouge, cultivated.

*Zea Mays*, Indian Corn, Baton Rouge, cultivated.

*Sorghum saccharatum*, Broom Corn, Baton Rouge, cultivated.

*Oryza sativa*, Rice, Baton Rouge, cultivated.

*Saccharum officinarum*, Sugar Cane, Baton Rouge, cultivated.

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## CRYPTOGAMOUS OR FLOWERLESS PLANTS.

### FILICES—*Ferns*.

*Onoclea sensibilis*, L., Sensitive Fern, Baton Rouge, East Baton Rouge.

*Aspidium Noveboracense*, Willd, Shield Fern, Old Seminary, Rapides.



*Aspidium patens*, Swartz, Spreading Shield Fern, Opelousas, St. Landry.

*Aspidium thelypteris*, Swartz, Edge-winged Fern, Baton Rouge, East Baton Rouge.

*Aspidium achrostichoides*, Swartz, Uncolored Fern, Old Seminary, Rapides.

*Woodwardia angustifolia*, Smith, Narrow-leaved Woodwardia, Old Seminary, Rapides.

*Osmunda cinamomea*, L., Cinnamon Fern, Old Seminary, Rapides.

*Osmunda regalis*, Flowering Fern, Old Seminary, Rapides.

*Pteris aquilina*, L., Common Brake, Old Seminary, Rapides.

*Pteris caudata*, L., Tail-leaved Brake, Old Seminary, Rapides.

*Polypodium incanum*, Swartz, Hoary Polypody, Old Seminary, Rapides.

*Asplenium ebeneum*, Ait., Black-stemmed Spleenwort, Baton Rouge, East Baton Rouge.

*Asplenium ebeneum*, Ait., var. *Bacculum Rubrum*, Baton Rouge Spleenwort, Baton Rouge, East Baton Rouge.

*Asplenium filix foemina*, R. B., Female Fern Spleenwort, Old Seminary, Rapides.

#### LYCOPODIACEÆ—*Club Moss Family.*

*Selaginella apus*, Spring, Martinet Selaginella, Baton Rouge, East Baton Rouge.

#### HYDROPTERIDES—*Water Fern Family.*

*Azolla Caroliniana*, Willd., Carolina Azolla, Port Hudson, East Feliciana.

#### MUSCI—*Mosses.*

*Thuidium gracile*, Br. and Sch., Slender Thuidium, Baton Rouge, East Baton Rouge.

*Thuidium tamariscinum*, Hedw. Hypnum, Tamarik-leaved Thuidium, Baton Rouge, East Baton Rouge.

*Amblystegium radicale*, Brid. Hypnum, Root-leaved Amblystegium, Baton Rouge, East Baton Rouge.

*Cylindrothecium seductrix*, Hedw., Fair-leaved Cylindrothecium, Baton Rouge, East Baton Rouge.

*Cylindrothecium cladoerhizans*, Hedw., Branch-rooting Cylindrothecium, Baton Rouge, East Baton Rouge.

*Atrichum angustatum*, Hook, Narrow-leafed Shield Moss, Baton Rouge, East Baton Rouge.

*Atrichum crispum*, James, Crisp-leafed Shield Moss, Baton Rouge, East Baton Rouge.

*Weissia viridula*, Brid., Green Pearl Moss, Baton Rouge, East Baton Rouge.

*Trichostomum pallidum*, Hedw., Pale Trichostomum, Baton Rouge, East Baton Rouge.

*Physcomitrium pyriforme*, L., Pear-fruited Physcomitrium, Baton Rouge, East Baton Rouge.

*Funaria flaviscus*, Michx, Yellow Funaria, Baton Rouge, East Baton Rouge.

*Funaria hygrometrica*, Hedw., Common Funaria, Baton Rouge, East Baton Rouge.

*Desmatodon plinthobius*, Sul. & Lesq., Plinth-fruited Desmatodon, Baton Rouge, East Baton Rouge.

*Bartramia radicalis*, Beauv., Root-leafed Bartramia, Baton Rouge, East Baton Rouge.

*Eurhynchia hians*, Hedw., Disjointed Eurhynchia, Baton Rouge, East Baton Rouge.

*Leucobryum glaucum*, Pale-green White Moss, Old Seminary, Rapides.

*Leucobryum minus*, Hampe, Small-leafed White Moss, Old Seminary, Rapides.

*Rhynchostegium microcarpum*, T. Mull., Small-fruited Rhynchostegium, Baton Rouge, East Baton Rouge.

*Leptodon trichomitrium*, Mohr. var. *immorsus*, Sul., Hair-capped Leptodon, Baton Rouge, East Baton Rouge.

*Hypnum curvifolium*, Hedw., Curve-leafed Branch Moss, Baton Rouge, East Baton Rouge.

*Hypnum micans*, Schwartz, Shining Branch Moss, Baton Rouge, East Baton Rouge.

*Hypnum micans* var. *albulum*, Aust, Whitish Branch Moss, Baton Rouge, East Baton Rouge.

*Hypnum recurvans*, Br., Bent Branch Moss, Baton Rouge, East Baton Rouge.

*Sphagnum cymbifolium*, Dill, Boat-leafed Sphagnum, Old Seminary, Rapides.

*Leskea polycarpa*, Hedw., Many-fruited *Leskea*, Baton Rouge, East Baton Rouge.

*Leucodon julaceus*, Hedw., Close-matted *Leucodon*, Baton Rouge, East Baton Rouge.

*Fissidens adiantoides*, Hedw., Maiden-hair *Fissidens*, Baton Rouge, East Baton Rouge.

*Fissidens minutulus* Sul var *terrestris*, Diminutive *Fissidens*, Baton Rouge, East Baton Rouge.

*Barbula muralis*, Hedw., Wall Screw moss, Baton Rouge, East Baton Rouge.

*Barbula sabciolata*, Aust., n. sp., Sparse-Fringed Beard moss, Baton Rouge, East Baton Rouge.

*Brachythecium rutabulum*, Br., Rake-leafed *Brachythecium*, Baton Rouge, East Baton Rouge.

*Brachythecium plumosum*, Br., Feather-leafed *Brachythecium*, Baton Rouge, East Baton Rouge.

*Meteorium pendulum*, Sull., Festoon-branched *Meteorium*, Baton Rouge, East Baton Rouge.

*Cryphea nervosa*, Hook and Wils., Nerve-leafed *Cryphea*, Baton Rouge, East Baton Rouge.

*Cryphea glomerata*, Sch., Tufted *Cryphea*, Baton Rouge, East Baton Rouge.

*Mnium affine*, Bland, Close-marked Star moss, Baton Rouge, East Baton Rouge.

*Trematodon longicollis*, Michx., Long-necked *Trematodon*, Baton Rouge, East Baton Rouge.

#### HEPATICE—*Liverwort Family.*

*Lejeunia clypeata*, Sull., Shield-leafed *Lejeunia*, Baton Rouge, East Baton Rouge.

*Lejeunia Sullivantii*, Aust., Sullivant's *Lejeunia*, Baton Rouge, East Baton Rouge.

*Lophocolea heterophylla*, Nees, Mixed-leafed *Lophocolea*, Baton Rouge, East Baton Rouge.

*Plagiochyla Ludoviciana*, Sul., Louisiana *Plagiochyla*, Baton Rouge, East Baton Rouge.

*Jungermannia Schraderi*, Mort, Schrader's *Jungermannia*, Baton Rouge, East Baton Rouge.



*Anthoceros lævis*, L., Smooth *Anthoceros*, Old Seminary, Rapides.  
*Dumortiera hirsuta*, Nees, Rough-leafed *Dumortiera*, Amite river, East Baton Rouge.

*Steezia Lyellii*, Lehm., Lyell's *Steezia*, Old Seminary, Rapides.

*Fimbriana tenelle*, Nees, Slender *Fimbriana*, Baton Rouge, East Baton Rouge.

*Marchantia polymorpha*, L., Multiform *Marchantia*, Baton Rouge, East Baton Rouge.

*Madotheca Porella*, Dicks., *Porella's Madotheca*, Baton Rouge, East Baton Rouge.

*Madotheca involuta*, Hampe, Covered *Madotheca*, Baton Rouge, East Baton Rouge.

*Radula Lescurii*, Aust., Lescure's *Radula*, Covington, St. Tammany.

*Sphagnoecetis communis*, Nees., Common *Sphagnoecetis*, Covington, St. Tammany.

*Riccia natans*, L., Floating *Riccia*, Baton Rouge, East Baton Rouge.

*Riccia glauca*, (?) L., Pale Green *Riccia*, Baton Rouge, East Baton Rouge.

#### LICHENES—*Lichens*.

*Cladonia Floerkeana*, Fries., Floerke's *Cladonia*, Amite River, East Baton Rouge.

*Cladonia cristella*, Tuckerm., Tufted *Cladonia*, Baton Rouge, East Baton Rouge.

*Cladonia mitrula*, Tuckerm., Mitreform *Cladonia*, Amite River, East Baton Rouge.

*Cladonia fimbriata*, Fr., var. *aspera*, Tuck., Wide-spread *Cladonia*, Baton Rouge, East Baton Rouge.

*Biatoria decolorans*, Fries., Discolored *Biatoria*, Old Seminary, Rapides.

*Biatoria russula*, Tuckerm., Flesh-colored *Biatoria*, Baton Rouge, East Baton Rouge.

*Physcia stellaris*, Wollr., var. *tribacia*, Mean Starry *Physcia*, Baton Rouge, East Baton Rouge.

*Physcia stellaris*, Wollr., var. *Dorningensis*, Domingo Starry *Physcia*, Baton Rouge, East Baton Rouge.

*Physcia picta*, Nyl., Pictured *Physcia*, Baton Rouge, East Baton Rouge.

*Physcia speciosa*, var. *galactophylla*, Tuck., White-leafed Showy *Physcia*, Baton Rouge, East Baton Rouge.

*Pyxine cocoas*, var. *sorediata*, Nyl., Sorediate *Pyxine*, Baton Rouge, East Baton Rouge.

*Theloschistes chrysophthalmus*, var. *flavicans*, Yellow *Theloschistes*, Baton Rouge, East Baton Rouge.

*Ramalina gracilentia*, Ach., Slender-branched *Ramalina*, Baton Rouge, East Baton Rouge.

*Ramalina Montagnei*, De Not., Montagne's *Ramalina*, Baton Rouge, East Baton Rouge.

*Ramalina calicaris*, var. *fraxinea*, Ach., Ash *Ramalina*, Baton Rouge, East Baton Rouge.

*Usnea barbata*, Fr., var. *florida*, Fr., Flowering Bearded *Usnea*, Red River Falls, Rapides.

*Usnea trichodea*, Ach., Hair-branched *Usnea*, Red River Falls, Rapides.

*Graphis scripta*, Ach., Written-marked *Graphis*, Baton Rouge, East Baton Rouge.

*Graphis sculpturata*, Carved-marked *Graphis*, Baton Rouge, East Baton Rouge.

*Lecanora pallescens*, Fr., Pale *Lecanora*, Baton Rouge, East Baton Rouge.

*Lecanora subfusca*, Ach., Brownish *Lecanora*, Baton Rouge, East Baton Rouge.

*Trypethelium cruentum*, Mont., Red *Trypethelium*, Baton Rouge, East Baton Rouge.

*Buellia parasema*, Koerb, False *Buellia*, Baton Rouge, East Baton Rouge.

*Heterothecium Domingense*, Tuck., Domingo *Heterothecium*, Baton Rouge, East Baton Rouge.

*Pyrenula nitida*, Ach., Glossy *Pyrenula*, Baton Rouge, East Baton Rouge.

*Pertussaria velata*, Nyl., Covered *Pertussaria*, Baton Rouge, East Baton Rouge.

*Pertussaria leioplaca*, Ach., Many scaled *Pertussaria*, Baton Rouge, East Baton Rouge.

*Parmelia perforata*, Ach., Perforated *Parmelia*, Baton Rouge, East Baton Rouge.

## FUNGI.

*Agaricus campestris*, L., Field Mushroom, Baton Rouge.

*Agaricus amygdalinus*, Curt., Almond Mushroom, Baton Rouge, East Baton Rouge.

*Agaricus cespitosum*, Curt., Tufted Mushroom, Baton Rouge, East Baton Rouge.

*Polyporus laceratus*, Berk., Ragged *Polyporus*, Baton Rouge, East Baton Rouge.

*Polyporus sanguineus*, Fr., Blood-red *Polyporus*, Baton Rouge, East Baton Rouge.

*Polyporus lucidus*, Fr., Shining *Polyporus*, Baton Rouge, East Baton Rouge.

*Schizophyllum commune*, Fr., Common *Schizophyllum*, Baton Rouge, East Baton Rouge.

*Lentinus Lecontei*, Fr., Leconte's *Lentinus*, Baton Rouge, East Baton Rouge.

*Lentinus Ravenellii*, Berk. & Curt., Ravenel's *Lentinus*, Baton Rouge, East Baton Rouge.

*Lentinus lepideus*, Fr., Smooth *Lentinus*, Baton Rouge, East Baton Rouge.

*Atractium coccigena*, Berk. & Curt., Scarlet *Atractium*, Baton Rouge, East Baton Rouge.

*Stilbum cinnabarinum*, Mont., Cinnabar-colored *Stilbum*, Baton Rouge, East Baton Rouge.

*Melogramma gyrosum*, Schw., Winding *Melogramma*, Baton Rouge, East Baton Rouge.

*Merulius brassicæfolius*, Schw., Cabbage-leafed *Merulius*, Baton Rouge, East Baton Rouge.

*Aethalium septicum*, Fr., Putrid *Aethalium*, Baton Rouge, East Baton Rouge.

*Diatrype platystoma*, Schw., Wide-mouthed *Diatrype*, Baton Rouge, East Baton Rouge.

*Uredo Potentillarum*, D. C., Cinqufoil *Uredo*, Baton Rouge, East Baton Rouge.

*Uredo luminata*, Schw., Blabkberry *Uredo*, Baton Rouge, East Baton Rouge.



*Erineum fagineum*, Pers., Beech *Erineum*, Baton Rouge, East Baton Rouge.

*Hydnum ochraceum*, Pers., Yellow *Hydnum*, Baton Rouge, East Baton Rouge.

*Irpex bicolor*, Berk. & Curt., Two-colored *Irpex*, Baton Rouge, East Baton Rouge.

A number of the Fungi have not yet been determined.

#### ALGÆ.

##### OSCILLARIACEÆ.

*Vibrio Bacillus*, Müll., West Baton Rouge.

*Oscillaria*—several species undetermined—Baton Rouge.

##### NOSTOCACEÆ.

*Anabaena circinalis* (?), Rab., West Baton Rouge.

##### SCYTONOMACEÆ.

*Calothrix cæspitosa* (?), K., Baton Rouge.

*Tolypothesis distorta* (?), New Orleans.

##### DESMIDIEÆ.

*Closterium acerosum* (?), E., West Baton Rouge.

*Closterium moniliforme* (?), E., West Baton Rouge.

*Closterium lanceolatum* (?), K., Baton Rouge.

*Closterium Leibleinii*, K., Baton Rouge.

*Closterium striolatum*, Ehr., Baton Rouge.

*Docidium Bacculum*, Breb., Rapides.

*Euastrum didelta*, Ralfs., Rapides.

##### ZYGNEACEÆ.

*Spirogyra quinina*, Ag.

*Spirogyra nitida*, Dillw.

*Spirogyra decimina* (?), Müller.

*Zygnema cruciata*, Ag.

##### NEMATOPHYCEÆ.

*Bulbochaete setigera*, Ag., Lake Pontchartrain.

*Schizomeris Leibleinii* (?), K., Grand Isle.

*Drapnaldia glomerata*, Vauch., Baton Rouge.

There are a great number of specimens of the Confervoid Algae and of the Ulvaceae and the genus *Closterium* undetermined, and many given in the list are probably only approximations.

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DIATOMACEÆ.

EUNOTIÆ.

*Epithemia musculus*, K., Lake Pontchartrain.

*Epithemia turgida* (?), K., Lake Pontchartrain.

*Epithemia gibba*, K., Baton Rouge.

*Epithemia Westermanni*, K., Baton Rouge.

*Eunotia tetraodon* Ehr., Rapides.

*Himantidium pectinale*, K., in long filaments and separate valves, Amite river.

*Himantidium bidens*, E., Rapides.

*Himantidium*, *Arcus*, E., Rapides.

*Himantidium undulatum*, S., Rapides. This species has a gibbous center, three slight dorsal undulations, and obtuse recurved apices, and corresponds with the description of it in Pritchard. The habitat indicated in that work is Europe.

*Himantidium parallelum*, E.

FRAGILLARIACEÆ.

*Fragillaria capucina*, Desm., in elongated tapering filaments, Baton Rouge.

*Nitzschia parvula*, S., Grand Isle.

*Nitzschia Dianæ*, E., Pontchartrain.

*Nitzschia amphioxys*, E., Baton Rouge.

*Ceratoneis Closterium*, E., Rapides.

SURIHELLEÆ.

*Synedra vitrea*, K., Baton Rouge. The valve of this species is beautifully striated, with a quadrangular vacant space in the center. It is linear lanceolate, contracted to slightly dilated, obtuse, rounded ends. The front view is also perfectly transparent; very long; has distinct marginal striæ, and more or less dilated truncate ends. I

have named it *S. vitræ*, with the characteristics of which I am only acquainted from the short description in Pritchard, because Professor Bailey gives the *S. vitræ* as the only species found in Southern waters. Otherwise I might have designated it by *S. lanecolata*.

*Synedra amphirhynchus* (?) E., Amite river. Only distinguished from the preceding in having the front view perfectly linear, with truncate but not dilated ends. The form of the valves is nearly the same as that of the preceding species, but it has no quadrangular median space. It is probable that neither of the above designations of *Synedra* are the proper ones. My object was to include them in the list by some specific name, the character of which they approximate.

*Synedra lunaris*, E., Amite river. A great number of *Synedras* are still undetermined.

*Cymatopleura elliptica* (?), Breb., Grand Isle. We have but a single specimen in side view.

*Surirella splendida*, Ehr., (we have specimens of the large and stunted variety) Rapides and Baton Rouge.

*Surirella Craticula*, Ehr., Lake Pontchartrain.

*Surirella striatula*, Turp., Lake Pontchartrain.

*Surirella ovata* (?) Ehr., Baton Rouge.

*Surirella biseriata*, Breb., Rapides.

#### STRIATELLIÆ.

*Tabellaria fenestrata*, K., Rapides.

#### MELOSIREÆ.

*Melosira nummuloides*, Ag., Grand Isle.

*Melosira Jurgensii* (?), Ag., Grand Isle.

*Melosira varians* (?), Ag., (In filaments of great length) Baton Rouge.

*Pixidicula compressa*, Bail, Grand Isle. This is one of the most beautiful diatoms of the collection. Its dotted lines reflect the light in a variety of colors.

#### COSCINODISCEÆ.

*Coscinodiscus radiatus*? Ehr., (many specimens,) Grand Isle.

The specimens are comparatively small, the punctæ are cellulose, smaller in the margin, and the radiated lines are obscure; but the punctæ are all distinct and very large.



*Coscinodiscus subtilis*? Ehr. Punctiform in radiating triangular linear rays. Grand Isle.

*Actinoptychus undulatus*, Ehr., (one single specimen,) Grand Isle.

#### BIDULPHIEÆ.

*Bidulphia obtusa*, Rich, (only one specimen,) Grand Isle. [Corresponds precisely with the description and figure of Pritchard.]

*Odontella polymorpha*, Rab., (A great number of specimens,) Grand Isle.

#### TERPSINOEÆ.

*Terpsinoe musica*, Ehr., (A great number of specimens,) Grand Isle.

#### COCCONEIDEÆ.

*Cocconeis Pediculus*? E., (Found collected in great numbers,) Lake Pontchartrain.

This species resembles *C. placentula*, but it is smaller, and has no transverse striæ. The longitudinal striæ are undulating, from three to four on each side of the median line. In most of the specimens the striæ are obscure. They are congregated in large numbers, on *Enteromorpha*.

*Cocconeis Finnica*, E., (This is a very beautiful species of *Cocconeis*,) Lake Pontchartrain.

This *Cocconeis* corresponds with Ehrenberg's figure; it has transverse striæ, and a lanceolate longitudinal fascia bisected by median line and nodule.

We have many other specimens of *Cocconeis*, but they are undetermined.

#### ACHNANTHEÆ.

*Achnanthes subsessilis* (?), K.—(numerous specimens)—Grand Isle. Some of these specimens are very beautiful.

#### CYMBELLEÆ.

*Cymbella Ehrenbergii*, K. (—numerous specimens)—Baton Rouge. There are two varieties of this species, one broad lanceolate in navicular form, and the other small and rounded, with slightly produced rostrate apices. Both varieties are distinctly striated.

*Cymbella maculata*, K., Baton Rouge. There are several other species of *cymbellæ* not determined.

*Amphora lybica*, E., Lake Pontchartrain and Amite river.

*Amphora lineolata*, E., Lake Pontchartrain.

#### GOMPHONEMEE.

*Gomphonema coronatum*, E.—(numerous specimens) — Amite river. This is a very graceful and beautiful species.

*Gomphonema Turris*, E., Amite river.

*Gomphonema dichotomum*, K., Baton Rouge.

*Gomphonema glans*, E., Baton Rouge.

*Gomphonema constrictum* (?), E. Amite river.

#### NAVICULEE.

*Navicula leptogongyla* (?), E., Amite river.

*Navicula viridis*, Nitzsch., Amite river.

*Navicula major* (?), K., Amite river. This specimen is one of the finest in the collection. Corresponds with Pritchard's figure Pl. VII., but has no tumid centre.

*Navicula mesogongyla* (?), E., Rapides.

*Navicula affinis*, E., Rapides.

*Navicula amphigomphus*, E., Rapides and Amite River.

*Navicula amphisphenia*, (?) E., (specimens in great number,) West Baton Rouge. This species resembles *N. cuspidata*, but is somewhat ventricose, or rather rhombic lanceolate in outline. It has the nodule elongated. It is generally perfectly smooth, but sometimes a specimen is found which is closely and most finely striated. Striae are perfectly perpendicular and parallel and reach the median line. There are numerous specimens in front, side and oblique view. When alive they are yellow and seem to be covered by a membrane, having a linear, broad, transverse band in the center. Some of the specimens are very large, measuring over an inch in size, others are comparatively small. The valve is subacute, but any modification of its lateral position renders the apices broader in proportion as it approaches the front view, which is nearly linear.

*Navicula Fusidium*, E., Rapides.

*Navicula Silicula*, E., Baton Rouge.

*Navicula hemiptera*, (?) E., Pontchartrain. This specimen is finely striated.

*Navicula crabro*, E., Pontchartrain.

*Navicula didyma*, E., Pontchartrain.

*Navicula dicephala*, E., Rapides.

*Navicula tabellaria*, E., Rapides.

*Navicula cuspidata*, K., Rapides.

*Navicula amphirhynchus*, Baton Rouge.

*Navicula rhyncocephala* (?) Fr. Differs from the figure in Pritchard by tapering more gradually to the rostrate apices, and striae only partially visible.

There are a great number of *Naviculæ* undetermined.

*Stauroneis Phoenicentron*, E., Rapides.

*Stauroneis platystoma* (?), E., Amite river.

*Stauroneis semen*, E., Lake Pontchartrain.

There are many fine specimens of *Stauroneis* undetermined.

*Pleurosigma obtusatum*, Sulliv, Baton Rouge.

*Pleurosigma attenuatum*, K., Lake Pontchartrain.

*Pleurosigma curvulum*, E., Baton Rouge.

#### ALGÆ MARINÆ—*Fucacæ*.

*Sargassum vulgare*, Aq., Beach of Grand Isle.

The Algæ proper, called "Seaweeds," are rare on the Louisiana Gulf coast, for there are no rocks to which they can attach themselves. We have several specimens of the class of *Confervæ* and *Ulvacæ*, but they are not determined.



## LIST OF INFUSORIA.



Want of time has prevented me from paying much attention to the Infusoriæ. The following specimens, among many others observed, have been marked:

*Gonium tranquillum*, Pritch.

*Rotifer vulgare*, Pritch.

*Euglena viridis*, Pritch.

*Euglena sanguinea*, Pritch.

*Kerona polyporum* (?) Pritch.

*Euglypha tuberculata*, Pritch.

*Lepadella emarginata*, Pritchard.

## LIST OF SHELLS COLLECTED

Which have been Determined.

*Spirula Peronii*, Grand Isle.*Donax variabilis*, Grand Isle.*Tellina Iris*, Grand Isle.*Tellina Cayennensis*, Grand Isle.*Littorina innovata*, Grand Isle.*Purpura Floridana*, Grand Isle.*Natica duplicata*, Grand Isle.*Busycon pyrum*, Grand Isle.*Modiola plicatula*, Grand Isle.*Solecurtus Caribæus*, Lam., Grand Isle.*Arca Campeachensis*, Grand Isle.*Arca incongrua*, Grand Isle.*Cardium muricatum*, ballast heap, New Orleans.*Plicatula ramosa*, ballast heap, New Orleans.*Chama macerophylla*, Chemn., ballast heap, New Orleans.*Venus cancellata*, ballast heap, New Orleans.*Helix aspersa*, Müller, Baton Rouge.*Succinea ovalis*, Gould, Baton Rouge.*Limnæa umbilicata*, Bin., Baton Rouge.*Gnathodon cuneatus*, Gray, Lake Pontchartrain.*Glandina bullata*, Baton Rouge.*Melantho decisa*, Say, Washington, St. Landry.*Helix auriforma*, Say, Baton Rouge.*Helix thyroides* Say, Baton Rouge.

The Unios collected on the banks of the Teche, and a number of shells belonging to the genus *Ostrea*, and some other small marine shells, I have not yet been able to have authentically identified.

All of which is respectfully submitted,

AMERICUS FEATHERMAN,

Lecturer on Botany and Professor of Modern Languages.

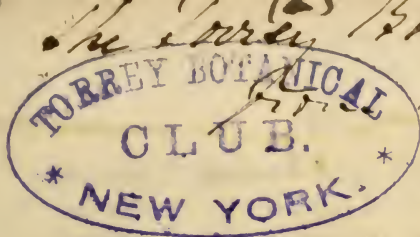
Respectfully forwarded to the Honorable Board of Supervisors.

D. F. BOYD,

Superintendent.







*The Torrey Botanical Club*  
*D. P. Island*  
*Dec. 1874*

## THIRD ANNUAL REPORT

OF

# Botanical Survey of Southwest and Northwest Louisiana,

MADE DURING THE YEAR 1871,

By PROFESSOR A. FEATHERMAN.

LOUISIANA STATE UNIVERSITY,  
January 7, 1872.

Colonel D. F. Boyd, Superintendent of Louisiana State University:

### OBJECT AND EXTENT OF THE SURVEY.

In accordance with the intention of the law enacted by the Legislature, authorizing the survey of the State for the purpose of ascertaining the physical resources of Louisiana in an economical as well as scientific point of view, I herewith submit to you the third annual report of the Botanical Survey, comprising Southwest and Northwest Louisiana, regions of country which have probably never before been botanically explored. As a great number of plants growing during the summer months were collected last year, I deemed it indispensably necessary to make an excursion during the spring to enable me to fill the deficiency of early flowers, of which our supply was but limited as regards locality, for Baton Rouge and vicinity were the only parts of the State that had been explored during the spring season. I therefore visited late in April the prairie regions of St. Landry and Calcasieu, the extensive pine flats of Calcasieu, and the pine hills of South Rapides, and I was fully compensated for the difficulty I encountered in the almost impassable roads, by the collection of a spring flora of great interest, and a number of specimens of rare occurrence elsewhere.

On my trip in northwest Louisiana during the summer months I passed through the parishes of Caldwell, Ouachita, Morehouse, Union,

Claiborne, Webster, Bienville, Red River and Natchitoches. As I travelled in a carriage, I had an opportunity of observing, not only the botanical character and the agricultural capabilities of that part of Louisiana, but also its geological features; and I have endeavored to supply, by my labor, botanical specimens for the herbarium, as well as geological specimens for the cabinet.

The botanical excursion of this summer nearly exhausts the summer vegetation of this State. It is true that a number of new specimens might occasionally be found in various parts of Louisiana during the months of July and August, for no collector can visit every locality where some rare specimen may not sometimes be met with, but such chance specimens would not justify the labor and expense of an excursion for collecting purposes.

If it is intended that the botanical survey shall be continued for another year, the collections must be made during the months of April, May and June, and some new specimens might be collected as late as the month of October. But no great harvest of supplies could be expected at any time, as the range of the collector is necessarily limited, no matter in what direction he may start out on his excursions.

To collect the entire flora of Louisiana, including flower-bearing and non-flower-bearing plants, would require many years and numerous assistants and contributors in every parish of the State. No single botanist could alone accomplish this object. The university herbarium comprises about two-thirds of all the flower-bearing plants that grow in Louisiana; but the cryptogamous flora, which constitutes the most difficult branch of botanical science, is far from being as full as the phænogamous, and especially the classes of fungi and algae, the number of which exceeds perhaps that of all others, are but partially represented on account of the difficulty of preserving them, and the still greater difficulty of studying them; for they are mostly microscopic plants, and are not described, as a class, in any standard botanical work which might be used for convenient reference.

The botanical collections already made comprising about fifteen hundred specimens, and belonging to every class of which the vegetable kingdom is composed, have been arranged and classified in scientific order, and no specimen of plant, however attractive, has

been admitted to make a part of the university herbarium which is not identified and whose individuality has not been determined.

In this arduous and difficult work I have been aided by Dr. A. W. Chapman, formerly of Jacksonville, Florida, the author of the best and most complete Southern Flora ever published; also, by the labors of my friend Colonel F. Austin, Esq., of Closter, New Jersey, in the determination of the mosses and lichens. In the department of mycology I take pleasure to acknowledge the valuable assistance of the Rev. M. A. Curtis, D. D., of Hillsborough, North Carolina; but I am more especially indebted to Professor H. W. Ravenel, of Aiken, South Carolina, a mycologist of great reputation, for the eminent services rendered to me in this branch of botany. To the kindness of C. W. Wheatley, Esq., of Phoenixville, Pennsylvania, I owe the determination of the unios collected in Louisiana.

A botanical excursion during the coming spring in the Southern parishes of the State will close the labors of the botanical survey of Louisiana. It would be desirable that the final report should include all previous reports, with the necessary revision to make it a uniform and continuous production; and if neatly printed and bound, it would form a small book of permanent value in a local as well as scientific point of view. I trust you will be authorized to accomplish this object by the specific appropriation of means for this purpose.

#### BOTANICAL, AGRICULTURAL AND GEOLOGICAL FEATURES OF SOUTHWEST LOUISIANA.

In undertaking a scientific tour of explorations, it would be prejudicial to the object proposed to be confined to a single branch of science, or to be limited in the range of observation to a single subject of inquiry. On the contrary, it is proper and even desirable that the student of nature, who investigates the great volume in which the finger of God has traced natural objects and natural phenomena with the utmost fidelity and exactness, should be permitted to extend his investigations to all kindred branches of science which have a natural connection with each other.

I must therefore be pardoned for encroaching somewhat upon the department of a fellow professor, who is fully able to do justice to his own branch of the survey, not with a view of furnishing a



treatise on the geological formations of the State, but merely to make a succinct statement of what I have seen and what deductions I draw from these partial observations, without, however, claiming any authority for the views I may advance.

During my excursion in the spring I had occasion to travel in a carriage and at my leisure through the extensive prairie regions of St. Landry and Calcasieu, and I could not fail to be struck with the marked difference that existed in the nature of the surface prairie soil of the two parishes. The St. Landry prairies, from Opelousas to Ville Platte in a northern direction, and from the same place westward toward Bayou Canes, possess nearly the same fertile quality, and are probably composed of the same chemical elements as the marsh soil of the Gulf coast and the Teche country; while the Calcasieu prairies proper, from Nez Pique to Lake Charles, are sand barrens, resting upon a yellow loam of the bluff formation, and covered by a thin crust of vegetable mould and a thin layer of marsh soil. In some low places the marsh soil is quite equal in depth to that of the St. Landry prairies, and these fertile spots form fruitful oases in the midst of a sandy desert. During spring, wherever the dead vegetation has been burned, these sand prairies present a green carpet of grass undulating in every direction, and interspersed here and there with circular sand mounds, adorned with the greatest variety of bright colored spring flowers. The prairies are dotted with the rose-tinted *Gaura lindeheimeri*, which is one of the largest and most beautiful of the species, and although common in the Texas prairies is not met with anywhere else in this State. The *Castilleja coccinea* decks the surface for some distance with scarlet and purple, while the eye meets everywhere the blue-flowered clusters of the *Scutellaria integrifolia*. The *Callirhoe papaver*, with its cup-like purple flowers, and the *Trifolium reflexum*, with its heads of beautifully tinted corollas, as well as several species of pink *Polygalas*, are conspicuous on the sand mounds. The marshy low grounds are clothed in blue and yellow by the *Sisyrinchium Bermudiana*, the *Iris versicolor* and the *Ranunculus Texanus*. In the St. Landry prairies the most numerous plants are the *Cacalia ovata* and the *Polytaenia Nuttallii*, which do not occur in the Calcasieu prairies. The *Psoralea melilotoides* and the *Erigeron tenuis* are common to both regions.

This difference in vegetation confirms the difference of soil as already pointed out, and the question presents itself: what is the probable difference in the geological formation of these two contiguous regions of country, which apparently have both been exposed to the same natural causes in the formation of the surface level, and both rest upon the same brown loam of the bluff? The only plausible solution that I can give to this question is, that the St. Landry prairies were formed like the marsh lands of the Attakapas country, from the gradual deposits of finely comminuted materials suspended in the water of the gulf marshes, and composed of lime, clay and sand and decayed vegetable matter. These prairies have been redeemed from the gulf marshes at a much earlier period than the Calcasieu prairies, and their surface soil was formed not by the gradual recession of the gulf shore or by sudden overflows and the rapid rise and subsidence of the tides, but by a calm surface of marsh water slightly disturbed only by the periodical flux and reflux of the waters of the gulf.

On the other hand the Calcasieu prairies were formed by the sinking of the gulf bed and the gradual contraction of the shore line, as well as sudden periodical tidal overflows of the gulf waters agitated by the winds and in constant motion, depositing only the heaviest materials, and sweeping there by the force of the waves the coarse-grained sand slightly intermixed with clay and lime ingredients.

In low places the waters accumulated from sudden inundations, remained stationary until they were evaporated, leaving behind the soil material which they held in suspense, which accounts for the fertile spots in a sandy country.

In other words the undulating surface of the Calcasieu country was an insuperable obstacle for the encroaching tide waters of the gulf to form marshes; but as the gulf shore once extended to where the Calcasieu river divides into two branches, it gradually receded by the sinking of its bed, and the waves and tides dashing towards the shore left every where a layer of sand, until the whole country from the Nez Pique to the low grounds where the gulf marshes commenced became a sandy plain, now covered by a crust of vegetable mould produced by the accumulation of decaying vegetation continually reproduced for thousands of generations.

In confirmation of the theory that the Gulf extended, within a

comparatively recent period, to the forks of the Calcasieu river, it may be stated that a mile and a half above Lake Charles, at Nix's ferry, the banks of the river which are composed of the yellowish brown loam of the bluff formation, contain at the depth of from three to four feet, numerous oyster shell deposits apparently of recent type, almost in their natural state, a few of them being incrustated with barnacles. The same shell deposit also exists at Gossport, where oyster shells were found at a very shallow depth in digging a well at some distance from the river banks. An addittonal proof to sustain the position assumed, is the well known fact that the banks of Lake Charles, composed of yellow loam, which in some places are from twenty to thirty feet above the level of the lake, are partially made up of the brackish water shell peculiar to the outlets of the Gulf, called *Gnathodon cuneatus*, in a fossil state; and that the same bivalve shells are now found in a living state in Lake Charles itself in considerable quantity, being supplied with the necessary ingredient of salt water by the rising of the tide, the effect of which is slightly felt at the lake shore. The most remarkable anomaly presented is the connection in the fact that the *Unio trapezoides*, the *Unio nodulosus*, and the *Unio apiculatus*, essentially fresh water shells, are found associated with the salt water *Gnathodon* at the shallow bottom of the lake, about a hundred yards from the shore.

This proves beyond all doubt that the yellowish brown loam, underlying the Calcasieu prairies and the pine flats, and which does not present anywhere distinct stratifications, is of marine origin, and must have been deposited by the waters of the Gulf, at the time the shore line commenced to contract, leaving behind a layer of sand, thrown out by the action of the waves dashing against the shore.

From Nix's to Richie's ferry, which is on the west fork of the Calcasieu, the road passes, for a distance of four miles, through a narrow strip of swamp land, rich in the composition of its soil materials, and very heavily timbered. Here are found the swamp chestnut, oak, beech, hickory, magnolia, sweet gum, locust, and here and there a cypress; all of very large size.

On the north bank of the west fork the pine woods commence, and continue as far as Bayou Rapides, where the pine hills gradually slope down to the Red river bottom lands.

The Calcasieu prairies are every where interspersed with circular



sand mounds, and their mode of formation is still a mystery to the geologist. The theory has lately been advanced that their formation is due to the action of gases in the inferior strata, which formed a kind of crater throwing up the sand from beneath. But this explanation is by no means satisfactory. It is well known that all vent holes for the exit of gases, as well as volcanic scoria, are generally in the form of a funnel, and as sand is of a shifting character, its surface would not assume a convex form where the funnel is broadest, but it would present the shape of a concave cap, the center column of sand being drawn downward by the force of gravity through the narrow tubular end of the funnel, while the broad upper part of the funnel would support the layer of sand in position in proportion to its greater or less obliquity. But the shifting central column must necessarily fill the space left vacant by the subsidence of the upward pressure of the expanding gases, for we have no evidence that these elements, if they ever existed, are in active force now. I think it would be almost as reasonable to suppose that these mounds were formed by whirl-winds like snow drifts or mountain-like waves, and were afterwards fixed in their position by the vegetation which subsequently sprung up, which bound together, as it were, the shifting sand grains, no longer exposed to the disturbing action of the winds.

I have seen no animals of any kind in the prairies, except snipes and a few other prairie birds, and some land terrapins. I was struck, however, by the very remarkable fact that I had not met with a single freedman, either in the road, the Creole houses, or the field, after traveling a distance of ninety miles. The only exception to this was a colored family residing about seven miles from Lake Charles, who cultivated a piece of land on their own account.

The creoles and their boys not only do their own plowing and planting, but the poorer creole women also work. They go generally barefooted, wear colored handkerchiefs on their heads, cook, spin, weave, sew and knit, cut wood, make fires, nurse the babies, and do all other household work. The settlements are so scattered, and the houses so far distant from each other, that there is hardly a schoolhouse or a church to be seen anywhere. There is no post office between Opelousas and Lake Charles.

A rapid influx of an industrious population would soon change

the face of this whole country, but such a result can only be realized by the construction of a railroad, traversing the whole length of the prairie region of St. Landry and Calcasieu.

The pine flats of Calcasieu, covered with the *Pinus australis*, present the same soil ingredients as the sand prairies, and their botanical features are almost identical. Here the *Marshallia lanceolata*, the *Aletris farinosa* and *Aletris aurea*, the *Acerates paniculatus*, the *Hymenopappus scabiosaeus* and several species of *Baptisias*, as well as the *Erigeron strigosum* are the predominant forms of the spring flora. The subsoil is composed of a sandy layer, which rests on a bed of yellow loam, and is covered by a thin crust of vegetable mould.

The pine flat forests are without underwood, and the grass grows there as luxuriantly as it does in the sand prairies, and they afford excellent pasture ground for live stock. Their level surface is broken every nine or ten miles by creeks and bayous and other small water courses, which form what the natives call *hummockes*, and are fertile spots enriched by the sediment deposited during the prevalence of high water in the spring. They are for the most part occupied by small farmers, who cultivate a small patch of corn and cotton, and other agricultural products, but who make the raising of live stock their principal business.

It is a question of some interest which presents itself in connection with the pine flats and the sand prairies. If they belong to the same formation, and are composed of the same soil materials, what natural causes were at work which covered the pine flats with an abundant growth of the loftiest trees and left the contiguous prairies unoccupied by forest growth? The reason of this difference becomes apparent, I think, from the following considerations:

The pine flats were, probably, some thousands of years ago in the same condition as the prairies are now. Being situated on a higher level they were redeemed from the receding Gulf shore at a much earlier period, and as their northern boundary touches the pine hills of the drift period of South Rapides the winged seeds of the long-leaved pine were gradually disseminated throughout that region by the winds, until a thick pine forest had covered the whole country now constituting the pine flats. The pine forest would continue to spread slowly but surely until the whole of the Calcasieu prairies is

overgrown with it, were it not that partial settlements have within the last fifty or a hundred years interrupted its progress, by the annual burning of the dead prairie grass, which consumes at the same time the young pine sprouts that would otherwise spring up annually. This is also the reason why the pine woods are generally clear of young pine trees, because they are destroyed by the fires kindled to burn the pine leaves, which cover the ground and prevent the grass from sprouting. In addition to this, the grazing of numerous herds of cattle in the prairies as well as the pine flats, contributes much to produce the same result, for late in the summer and in early fall, after the grass has seeded, and its tops are dry and withered, the cattle not only nip the young grass, but also the pine sprouts, that may accidentally show themselves above the surface, and by this means their further growth is prevented.

The pine lands, which take their beginning from the north bank of the west fork of Calcasieu river, extend a hundred and fifteen miles from south to north in the direction of Alexandria, and seventy miles from east to west, from the edge of the St. Landry and Calcasieu prairies to Sabine river, which is the boundary line between Louisiana and Texas.

This extensive pine region embraces over eight thousand square miles of land, and the pine flats forms one of the best ranges for live stock that can be found within the limits of the State, for there the grass is almost as thick and luxuriant as in the prairies, and they are almost preferable for pasturage, because the top-branched trees afford considerable shade, and protect the stock from the excessive heat of the sun, while the creeks and bayous are far more numerous, which serve as convenient watering places for cattle.

In the low grounds, the creek bottoms, called hummocks, are rich, but they are for the most part, slovenly cultivated in corn or cotton. Whenever the traveler reaches one of these water courses, however insignificant in size, he will find deep gullies and steep, sloping banks, which must be passed at considerable risk of upsetting or of being balked in a sticky, tenacious mud. Here the pine suddenly disappears, and the character of the vegetation changes altogether. On a strip of land not exceeding a quarter of a mile in width, bordered by pines on both sides, the sweet gum, black jack, post and red oak, hickory, mock orange, the *Ilea Virginica* and the *Viburnum nudum*, present quite a contrast to the dusky green of the pine forest.



The pine flats terminate near Burdick's creek, about fifty-five miles from Lake Charles, and sixty-five miles from Alexandria, and there the pine hills commence. The character of the vegetation changes but little, except that the *cuidosculus stimulosus* and the *hymenapappus scabiosaeus* are most flourishing in this region of country. Here is the terminal line of the bluff formation, and the orange sand hills begin.

The orange sand formation is peculiar to the Southern States, and it was probably formed during the same geological period as the northern drift. It is now generally admitted that the northern drift is due to the sliding action of glaciers descending from lofty mountains and transporting to the valleys the detritus of rocks, and large, enormous boulders embedded in the ice. The orange sand, on the other hand, is diluvial, and seems to be the result of mountain torrents, which on the breaking up of the winter ice, swelled their volume to an enormous extent, and the water, in the rapidity of their currents, swept along the sand and pebbles, while the larger rocks and small boulders formed the ballast of ice masses broken loose from the mountain range. There is really no true drift formation in the Southern States, except that the age of the diluvial orange sand corresponds to the northern drift period.

The orange sand deposit of North Calcasieu and South Rapides is principally composed of bright red clay, graduating into light yellow and white, and alternating with extensive stretches of sand hills, the sand being of all colors, from deep orange to pure white, intermixed with small water-washed pebbles of opaque quartz, jasper and horn stone. Neither fossiliferous pebbles nor boulders of any kind are to be seen in these pine hills. The iron stone, so abundant in North Louisiana, is entirely wanting.

In an agricultural point of view, the long-leaved pine which grows here to a gigantic height, if made subservient for the production of turpentine, would furnish the most valuable commercial staple of this part of Louisiana. The country is however too thinly settled for this purpose, and small farming communities are found only on the bottom lands all along the water courses, which will yield good crops, sufficiently remunerative to those who labor with their own hands, and are not dependent on the hired labor of the freedman. The hill lands are poor, and as they are washed out into deep gullies

by the rain in a few years, the surface soil is swept off, and nothing is left but the barren clay, mixed with pebbles and sand.

The aspect of the country through the pine flats of Calcasieu and the pine hills of South Rapides is gloomy and desolate in the extreme. The roads are mere narrow paths, hardly passible in a vehicle, and the numerous water-courses present steep and almost impassable banks, unprovided with bridges. Settlements are scarce and are found only at long intervals. Frequently no house is seen on the road within a distance of fifteen or twenty miles, and when a human dwelling suddenly looms up, on approaching nearer it is found to be an old dilapidated log cabin, with a few rooms serving as kitchen, dining and sleeping apartment. But no matter how poor the accommodations may be, the pine woods man never turns a traveler away, and gives him the best he has, for which he naturally expects compensation, for money is scarce in those parts, and a few dollars will at least procure some luxuries not generally indulged in by these primitive people.

It has been said by an eminent writer that the degree of civilization of any country may be determined from the condition of the public roads. This pseudo-philosophical axiom finds its application, at least, partially, in the pine woods country of southwest Louisiana, for what is called the military road is the most arrant cheat, to deceive the traveling public with a high-sounding name. I will state for the information of the traveler that he must not imagine that this so-called military road, constructed by the authority of the Federal Government, at a probable cost of half a million, bears any resemblance to the celebrated Roman roads, which are to this day the finest roads in the world, but he must all at once make up his mind to exert his utmost skill in driving, in order to avoid the most dangerous water-washed gullies, leaving hardly sufficient room for a carriage to pass, with a succession of steep, sandy hills constantly rising before him, and numerous water-courses, most of them without bridges, whose approaches are of a swampy nature, deep-rutted and boggy, and whose banks descend by an almost perpendicular slope of from six to ten feet, while the ascent is correspondingly abrupt.

There is no post office between Lake Charles and Alexandria, a distance of one hundred and thirty-five miles. The Postmaster

General probably looks upon the people of the pine lands as outside barbarians, hardly included within the limits of the United States. There are no schools or school houses of any kind in this region of country, at least as far as my information goes.

Some of the stock raisers who have from two thousand to three thousand head of cattle branded and running in the woods, have not corn enough to furnish feed to their own riding horses, who are kept alive by grazing, and even the corn necessary for the supply of their daily bread has frequently to be purchased from some more fortunate neighbor, or has to be sent for from Lake Charles or Alexandria. When these stock raisers sell a portion of their cattle, they are not silly enough to buy articles of luxury and comfort to make home agreeable, but they go to Texas, and invest their surplus funds in the purchase of additional stock. They live in an extremely simple style, that the city people may receive their daily rations of meat, which they would not touch "even with their little finger." These people are certainly a curiosity in their way; and they make themselves very useful to the idle consumers for whose benefit they spend a life of self-denial and commendable temperance.

In a country like this, where the people are contented with their lot, and are fully impressed with the conviction, that "we want but little here below," where the luxuries of life are unknown and consequently inappreciated; where a man counts up his wealth by the number of calves he brands every year; where the use of coffee without sugar is the nearest approach to the refinements of society; where whole families live in rude log-cabins, containing but one or two rooms, civilization does not exist in an advanced state, and improvement is out of the question.

But this country possesses one redeeming feature, crime and vice are unknown here, and these people are simple-minded, uncorrupted and honest.

What this part of Louisiana principally needs is a railroad, post-offices, schoolhouses, and an industrious, energetic population. This is the land for the poor white man who is accustomed to work. The climate is healthy, mild and pleasant; a cool breeze is constantly blowing from the prairies. Land can be entered at ten cents an acre, with enough hummock land attached, to make a snug little farm. Stock-farms, conducted upon system, could be made very profitable in these grassy pine-woods pastures.



BOTANICAL AGRICULTURAL AND GEOLOGICAL FEATURES OF  
NORTHWEST LOUISIANA.

The geology of northwest Louisiana may be summed up in a few words. The surface soil in the low grounds bordering on the rivers, creeks and bayous is composed of alluvial deposit. The banks of the water courses and their beds are made up of the crumbling brown loam similar to that of the bluff and hill lands between the Ouachita and Red rivers, are covered with the orange sand deposit of the southern diluvial period.

The alluvial soil on the east side of the Ouachita, is not derived, as might be supposed, from the sediments left behind by the overflows of that river, but from the spring and early summer rise of the Mississippi, whose backwaters formerly covered the whole area of country included between the Ouachita and Mississippi rivers.

The Ouachita river is one of the clearest streams in the Southern States; its waters are almost transparent, and on this account it may be considered as one of the most beautiful rivers of this State. Its banks are composed of a stiff crumbling brown clay, which do not cave from below by the undermining of the water, but fall down from above by the disintegration of the clay materials. The west side is almost every where protected against the encroachments of the waters by lofty hills and steep or almost perpendicular banks, which, opposite the Hyneston place in Caldwell parish, rise to the height of from sixty to eighty feet.

The orange sand deposit consists here as every where else of large areas of sand hills; the sand being of various shades of color, from pure white to orange brown; and of various colored clays, which are mostly of a deep red, on account of the prevalence of iron, intermixed with it in a comminuted state, or existing in large masses, composed of argillaceous iron stone, ferruginous sandstone, and gravel cemented by oxide of iron into a conglomerate or pudding stone.

The gravel beds are not fossiliferous. There are, however, found in them, fragments of silicified wood, but no encrinitic stems or shells changed into silica have been met with, similar to the silicified fossils, which exist in great abundance in the gravel beds of Rapides east of Red river, and other parishes east of the Mississippi river.

In Union parish, on the road from Marion to Cherry Ridge, the hills are principally composed of argillaceous iron stone, covered by a thin layer of iron tinted sand, and here and there a shaly rock of metamorphic origin, which gives it the appearance of petrified wood, and the people of that part of the country pronounce it as such, and imagine that the petrification took place within a very few years at the spot where the rocks now lie. I was informed by an intelligent and educated planter that his little son had found the lower end of a pole around which fodder is stacked, perfectly petrified. He had not seen it himself, nor had he any inclination to have the truth of the statement verified. In another neighborhood I was told that a block cut for making shingles, was found in the woods after a few years, in a petrified state. If northwest Louisiana were a limestone country, and the water of the springs and wells were impregnated with carbonate of lime, these wonderful phenomena of sudden petrifications might be well founded. But in all this country hardly a trace of lime is perceptible in the water, and the petrifications found are siliceous, no calcareous petrifications occur here; and it is not probable that silicification takes place except in a sea, whose waters are of a high temperature, containing silica in a state of solution, or in hot springs, like the geysers of Iceland, which are impregnated with silicic acid.

From Farmersville to Spearsville the road presents a constant alternation of hills and hollows, where the argillaceous iron stone covers the whole surface, sometimes disposed in ledges, sometimes scattered in broken slabs washed by the water. These iron stone layers rest for the most part on gravel beds, and the pebbles are frequently intermixed with small fragments of water-washed iron-stones.

The country around Minden consists of a series of gravelly sand hills and the houses in the town are literally built upon the sand. These immense sand mounds rest upon yellow and gray clays, of which, in some localities, gullies of from twenty to thirty feet deep are exposed. In the outskirts of Minden, on the sloping banks of a shallow branch, are found thin layers of lignite from three to six inches thick and not more than a few feet of horizontal extent. It is imbedded in a grayish clay. About six miles from Homer lignite of a better quality is found, which, though it does not possess the metallic luster or the cleavage of coal, was supposed by some people

of the neighborhood to belong to the real coal formation. The existence of lignite in any part of Louisiana, as far as it has come under my observation, does not indicate any particular formation proper to the State, but it is like the iron stone a mere accidental component of the Southern diluvial deposit.

From Mount Lebanon to Sparta and from Sparta to within seven miles of Ringgold the surface is composed of pure sand, without intermixture of pebbles. About a mile this side of Rayburn's place the iron stone makes its appearance and the red water washed hills form the characteristic topographical features of the country. A short distance from Four Mile bayou there is a small shallow branch, strewn over with gravel, iron stone and conglomerate, where I found on the surface a considerable number of oyster shells (*Ostrea Alabamensis*) in a natural state and most of them in a good state of preservation, being but slightly water-washed. These fossil shells belong to the Claiborne strata of the tertiary period, which, in Louisiana, has no equivalent representative. It is, therefore, only an adventitious fossil brought to the locality where it is found by swift water currents or ice masses drifting from the mountains in Arkansas.

The Southern diluvial deposit is here distinguished by the peculiarity that in many prominent localities the gravel beds are either intermixed or underlie irregular layers of argillaceous iron stone or ferruginous sandstone, which imparts the deep red color to the subsoil. The gravel consists mostly of opaque quartz, hornstone and jasper, intermixed near Minden with iron gerdes and silicified wood, and in De Soto parish with leaf impressions in ferruginous sandstone, and in Union with slabs of shale of small size.

The gravel of the northwest Louisiana diluvial deposit is not, properly speaking, fossiliferous. No silicified sporifers or producta, no ennerinitic stems are here found; in which respect it differs so much from the diluvial gravel of East Rapides; East Feliciana, East Baton Rouge, Washington and St. Helena, which is strictly fossiliferous, and contains scattered rocks of conglomerates and bogue iron, but no argillaceous iron stone and ferruginous sandstone.

The difference of the gravel of the two regions of country above indicated, suggests the idea that the deposit of the two locations must have been derived from different mountain ranges. To solve



this question in a definite manner it would be worth while to ascertain whether the diluvial deposit of the eastern portion of Louisiana has not been washed down from the Alleghaney mountains, whose watershed is in a southwestern direction; while the gravel beds of northwest Louisiana derive their materials from the Sierra Madre and Guadalupe mountains in New Mexico, by way of Texas, and partly also from the mountains of the Indian territory and Arkansas; the natural watershed of these mountain ranges being south-east passing directly through northwest Louisiana to the Gulf of Mexico.

That part of northwest Louisiana which I passed in my travels, does not show any outcrops of the underlying formations; but judging from the fossils from Price's and Holtonswells in Bienville parish, it appears that the post tertiary formations cover in that part of the State the cretaceous division of the pleiocene period.

The surface geology of Louisiana is confined to the alluvion, the bluff formation and the diluvial deposit, all of past tertiary origin; with an occasional cropping out of the crumbling gray sand stone of the Grand Gulf period, and the blue lime stone of St. Landry and Winn, of tertiary origin.

The surface soil of Northwest Louisiana consists of a thin layer of dark gray soil, with a sandy, or red and yellow loam subsoil, which, if judiciously cultivated, produces fair cotton and corn crops; but unless manured wears out in three or four years. The land as well as the climate would be well adapted to the cultivation of wheat and other cereals, but as it requires much practice and skill to handle the scythe effectually, the freedmen refuse to cut it after the wheat has ripened.

The so called red lands, are considered inexhaustible. What imparts to them this extraordinary fertility, it is impossible even to conjecture, unless this kind of soil is impregnated with lime, phosphates in a comminuted state, which could only be ascertained by chemical analysis. As a general rule the uplands of Northwest Louisiana are but moderately productive, but where the lands lie level and do not wash, this soil could be improved by manuring and judicious farming, and one acre could be made to yield, what three acres now hardly produce, requiring three times as much labor, and exhausting instead of improving the land. The lands improved by

a proper system of tillage instead of deteriorating in quality and becoming in a few years entirely worthless, would increase not only in productiveness, but in the cash value of the land itself, and instead of killing the hen that lays the golden eggs, it would preserve its vitality for an indefinite number of years. A double object is therefore gained by this mode of agriculture. Better crops are produced by cultivating less land, and the amount of farm labor is considerably diminished, which is an offset in the expense account. Under this system, manure making must become one of the principal business of the farm, and all the refuse and rubbish of the household might be preserved for this purpose, and if the agriculturist makes it his study, having for its object to return to the land, from which he obtains his crops, a greater proportion of fertilizing materials than preceding crops have taken up and permanently withdrawn from the soil, he may rest assured, that his outlay of capital and labor will be fully compensated by enhancing the general cash value of his lands, and reaping a more abundant harvest from a smaller area of ground. What the upland farmer principally needs is to introduce system into his farming operations. He ought to determine what area of ground he will use for farming purposes, and this area should be in proportion to the number of hands he can command under the most favorable circumstances. He should then lay off his grounds in lots composed of a certain number of acres. His object should then be to study the advantages derived from the rotation of crops, following, and sowing his grounds in clover, grass, or beans to prepare his lands for a plentiful crop. The object of his planting operations should be not merely to draw the greatest amount of production with the least amount of labor, but to improve his lands, to embellish his plantation, and to use all his available capital for this purpose. To accomplish this most effectually, it would be indispensably necessary to sow and plant in abundance everything required for his support and that of his family. He must cultivate corn, wheat, oats, and hay to supply him with bread and feed for his work animals and live stock. He must raise stock of every kind to furnish him his annual supply of meat. He must cultivate vegetables and fruit to replenish his table with the luxuries of a country home. When all this is abundantly provided for beyond any contingency of rain or sunshine, it would be prudent husbandry

to direct his surplus capital and labor to the production of the staple articles such as cotton or sugar, from the sale of which he can realize some disposable cash to buy clothing and other luxuries and educate his children ; and if his crop is sufficiently remunerative, he may have money enough left to add, from year to year, new improvements to his plantation or farm, and make it an attractive home to himself, to his wife, and to his children.

The present system of planting, if system it may be called, is exactly the reverse of all this. The first thought of the planter is to plant as much cotton or sugar as possible, and as little corn as during the most favorable crop season would barely supply a sufficiency for home purposes, while everything else is neglected. Even if the crop is not injured by the worm, the caterpillar, the drouth, or excessive rains, the planter hardly ever realizes his expectations, for if good cotton crops are universal throughout the Southern States, the price will fall in proportion to the supply; and if the corn crop is a failure the planter is compelled to buy corn at ruinous prices, while his extraordinary yield of cotton hardly realizes a sufficiency of available funds to supply him with the necessities of life. It is time that this hazardous system, which was, perhaps, the best when the supply of labor was regular and compulsory, were abandoned, and the planter "accept the situation" and act accordingly. If the soil of North Louisiana, notwithstanding its inferior quality when compared with the alluvial lands, were cultivated upon a more rational plan than it is at present, that region of country could be made one of the most flourishing agricultural districts of the State.

The supply of water is abundant everywhere, and it is the best potable water that can be found; it is quite cool during the hottest summer months, and requires no addition of ice to make it more palatable. Fruits of every kind flourish here. Apples and peaches were so abundant this year that most planters were compelled to feed them to their hogs to prevent their rotting. But the orchards, notwithstanding their vast yield, are almost everywhere in a dilapidated condition, for the directing hand and superintending care are wanting.

The forest growth is not as gigantic as in the swamp country, but pine and oak timber of good quality, suitable for lumber, exists in the greatest abundance.



The population is composed of small planters, belonging to the middle classes, honest, industrious, possessed of considerable public spirit; and willing to be led in any scheme of feasible improvements that may be proposed. All that is required is the guiding genius who will initiate the measures. No social community, in any part of Louisiana, pays more attention to the education of the young than the people of the northwestern parishes. The schoolmaster is literally abroad in that part of the land. In many neighborhoods through which I passed, though poor in appearance, yet teachers are engaged for the session, who have no less than a thousand dollars guaranteed to them for their services, which is a large salary in countries where board can be had at from ten to fifteen dollars a month.

Numerous railroads are also projected through northwest Louisiana. One is to connect Monroe with Shreveport, which ought to have been completed long ago. Another is proposed to extend from Monroe to Fulton, Arkansas, and a still more important route is contemplated, connecting Shreveport with Memphis. The completion of these roads would give a new impulse to the planting interest, and would develop the natural resources of these parishes on a far more extensive scale.

Cotton spinning and the manufacture of cotton goods has also received some attention. A small cotton mill has been lately established at Arizona, six miles from Homer, in Claiborne parish, operating about three thousand spindles, and being principally engaged in the manufacture of osnaburgs; another factory of smaller capacity has lately been established at Mount Lebanon, Bienville parish. Establishments of this kind, for home consumption and partially also for foreign supply, may possibly succeed to a limited extent; but it must not be supposed that north Louisiana can ever become a great manufacturing district, such as exist in Massachusetts and elsewhere, for to manufacture on a large and extensive scale and enter into competition with rival establishments possessed of immense capital, it requires water power which the northern parishes do not possess, steam power being too expensive where there is no coal right on the spot. Besides for successful manufacture it requires a large population in prosperous cities, where the supply of white skilled labor is abundant, so as not to be exposed to the necessity

of stopping the machinery from want of hands to attend to the manufacturing manipulations. There are many other necessary conditions which it is unnecessary to mention here and which are wanting in North Louisiana.

It would be advisable that the planters of that part of the country employ their surplus capital to advance the agricultural and commercial interests and to render their land more productive and its yield more profitable, and home manufactures will follow, by the natural order of things, in the wake of the general improvement of the country. It only remains for me to give a succinct outline of the botanical features of north Louisiana. The forest growth is principally composed of short-leaved pine and a considerable variety of oaks, among which the black jack, post oak and black oak predominate. The *Pinus taeda* and the *Pinus inops* give, however, the characteristic features to the forest of the hill lands. Hickory is very abundant, and the *Magnolia lanca* (bay laurel) and the *Zanthoxylum Carolinianum* (prickly ash) are frequently met with, but the *Magnolia grandiflora*, so common in the swamps, is entirely wanting. On the banks of the Ouachita the *Robinia pseudo acacia* (flowering locust) fringes almost every where the water's edge, and this is the only part of the State where I found this tree grow wild. The *Verbascum Thapsus* (common mullein) and the *Verbascum blattaria* (moth mullein) are very common. The first covers whole regions of waste land in Ouachita and other northern parishes; the last is found principally in Webster parish. Both are introduced plants—they are not indigenous to the State. The prevailing summer weeds are the *Helenium tenaisolium* and the *Monarda punctata* (horse mint.) The first of these is the most wide spread plant in Louisiana, it probably occupies as much ground as all other flower-bearing plants together.

The general botanical features of this part of Louisiana are nearly the same as those of the pine lands where the orange sand formation prevails, with some marked difference, however, for in many localities I found numerous specimens never seen before in any other part of the State.

## AN ACCOUNT OF MY JOURNEYINGS.

*Southwest Louisiana.*

I left Baton Rouge on the Selma, an Opelousas packet, on the twentieth of April. It was a beautiful sunny spring day, and the trees were adorned with bright green foliage, which imparted youthful freshness and rich luxuriance to the face of nature. The Mississippi was everywhere at the highest water mark, and reached within a few inches of the top of the levees. This immense rise of the Mississippi waters tested the efficiency of the levee system to the utmost, and with one or two exceptions the levees afforded sufficient protection to stem the powerful current of "the father of waters," and keep him within circumscribed boundaries. The system is by no means perfect, and requires additional engineering skill and labor to render it complete. The alluvial lands beyond the levees seemed to be well cultivated, and the long corn, cotton and cane rows had rather a neat coquettish appearance, while their geometrical regularity suggested the fanciful idea that they must have been dressed up for some festival occasion. The lowlands, which were purposely excluded from the protective system of the law, were wholly or partially overflowed. In some localities patches of the *Senecia lobata* showed their golden yellow heads above the surface of the shallow waters. Frequently a stray house or a freed-man's hut formed, with its rising ground, a small island in this wide expanse of the Mississippi, and these houses were often occupied, men, women and children sitting on the gallery anxiously looking for the abating of the waters; while cattle and horses, lean and hungry, nipped the tree branches or stood patiently fixed to one spot as if waiting for something to turn up.

The Courtableau was sufficiently high to be navigable for large boats, and we landed safely in Washington on Saturday at eleven o'clock. I immediately proceeded in my carriage to Opelousas, and found a variety of spring flowers on my way to that place. The town was precisely in the same condition as I found it the previous summer. No improvements of any kind were visible, and the inhabitants seem to be satisfied that they have done well for themselves and their country, and that they can safely repose upon the laurels already won in the battle of life. I was, however, informed



that a German settlement had just been started in the parish which promised good results for the future, and may form a nucleus to make St. Landry the empire parish of the State.

The road from Opelousas to Grand Coteau is rather hilly. The uplands are of tillable quality, but not rich. Magnolia, sweet gum, locust, swamp chesnut and hickory are common in the low grounds and the high lands are supplied with the usual variety of oaks and other trees belonging to the red loam soil forest of the bluff. Grand Coteau is a village spread over a large area of ground, with its houses much scattered; but the most notable feature of the town is the St. Charles College, a school under the control of the Jesuit fathers, which presents with its extensive grounds quite a romantic appearance. The prairie land plantations in the neighborhood on the road leading to New Iberia are in a flourishing condition, and may probably be considered as belonging to the finest planting district of St. Landry.

As the object of my excursion was to ascertain the botanical characteristics of the Calcasieu prairies, I returned to Opelousas and started from there, through one of the most extensive prairie countries in Louisiana, in the direction of Lake Charles, a distance of ninety miles. During the spring season the prairies are beautiful beyond description, especially where the old withered grass has been burnt and a uniform green carpet of vegetation decks the undulating prairie level, as far as the eye can reach, with the softest verdure, variegated with the bright colors of the luxuriant prairie flowers. Here the blue-eyed scullicap vies with the dark purpled clusters of the psoralea, and the yellow and white-flowered false indigo intermingles freely with the fringe-flowered blue spiderwort; the narrow-leaved evening primrose every where gilds the grass with its golden spangled flowers, contrasted by the rose blossoms of the wild onion, whose range of growth is most extensive.

The roads through the prairies are in most places not better marked than a cow path; sometimes the continuity is entirely interrupted by the luxuriant growth of grass, and the track is only found again after traveling for a mile or so in a straightforward direction by the aid of the compass. These interminable paths are continually crossed and recrossed, and form a kind of labyrinth to the traveler who is unaccustomed to wander solitary and alone through a level

country without forests to serve as landmarks, houses being only visible in the misty distance of the blue horizon, and at intervals of ten to fifteen miles.

Prairie traveling has, however, that advantage that in dry weather no difficulties present themselves in passing in any direction with or without a road, unless stopped by an impassable bayou.

The places cultivated in these prairies are generally small farms owned by Creoles, who labor with their own hands, make a small crop of corn, and perhaps a little cotton or sugar, but pay considerable attention to the rearing of live-stock. Like the stock raisers of the pineflat their mode of living is extremely simple; the principal luxury they indulge in is coffee, the flavor of which is the most delicious, forming a beverage fit for the gods—such as a Frenchman knows only how to brew. They are, however, contented with their lot, and they are, probably, happier than the richest nabob who lives in a palace and feasts on the richest viands money can procure.

I crossed Bayou Cannes and Nez Pique, which are only a few miles apart, in a ferry boat. The surface of Bayou Cannes is completely unrippled; it seems to have no current whatever. Its waters look black and dirty, and if the original settlers who named the stream had been possessed of any classical learning, it could not have failed to suggest the name of Styx, the river of death, as the most appropriate designation. The Nez Pique is a bayou of some pretensions; it is broader than Bayou Cannes, but its waters are nearly as dirty and stagnant. Everything looks solemn and gloomy, old, worn and lifeless on these two water courses. The trees seem to be in a state of mourning, their foliage is dark, their trunks are water-washed and bare. The land is poor. The principal occupation of the Creole settlers is the splitting of rails and posts which they sell to the prairie farmers. The timber is of good size, composed of oak, cypress and hickory. Here the botanical features also change. The Pinkrook, with its long, tubular, crimson flowers, and the Soap berry or wild china tree, as it is sometimes called, grows in great luxuriance.

Beyond the immediate banks of the Nez Pique, at Miller's ferry, the prairies are uninterrupted as far as Lake Charles, a distance of forty-five miles, except by occasional strips of pine timber where the land rises above the ordinary prairie level, and consists of pure sand without any deposit of prairie soil on the surface.

On Lacasieu bayou, about twenty miles from Lake Charles, there is a comparatively flourishing settlement, the only one that has come under my observation on the whole route, and from there the road becomes plain, leading directly to town.

Lake Charles is situated on Calcasieu river, which forms here a broad and shallow lake about twelve feet deep, from which the town takes its name. It is on the edge of the pine lands by which it is surrounded. Its houses are scattered and old. No improvements of any consequence are going on. The jail is the most substantial building in the place, but is a useless luxury; it has no occupant, and is perhaps the only building "to let." The courthouse is an old, dilapidated one-story frame house. The town can boast of a telegraph office and a weekly steamboat line, connecting Lake Charles with Galveston, Texas, which is the lumber market for the disposal of the cypress lumber furnished by the numerous saw mills on the banks of the Calcasieu river. The favorable position of the town ought to make it a place of some note, and it would undoubtedly increase in importance if the back country were sufficiently settled capable of supporting it. The orange tree is much cultivated in and around Lake Charles, and whenever the season is favorable the orange crop of the neighborhood is of considerable value.

The Calcasieu river is a clear and beautiful stream. Its depth above and below the lake is from thirty to fifty feet, and it would be navigable to the gulf by the largest ships were it not that its channel, forming in several places wide and shallow lakes, interrupts the continuous course of ocean navigation. Small steamboats run from fifty to sixty miles above Lake Charles to bring down timber for the saw mills, for there are very few settlements on its banks. With the kind assistance of Dr. Gray I found many new specimens in the vicinity of Lake Charles and at Gossport, one of the most extensive lumber establishments in the neighborhood.

Having traversed the prairies for a considerable distance, I intended in my homeward journey to explore the pine flats and take the pine hills of South Rapides in my route.

The roads in the pine flats are no better marked than the prairie roads, and sometimes the narrow beaten path entirely disappears for some distance, and the pine logs which obstruct the road every



two hundred yards lengthens the distance considerably by the constant dodging from one side to the other, made necessary by the obstructions. There are but a few houses on the road ; sometimes two or three are found close together within twenty miles, but all the rest presents the most gloomy and dreary region that can be imagined, the level tract of pine lands being but occasionally interrupted by a small branch or creek running in a deep hollow.

From Bundick's creek the road is extremely hilly and water-washed, and after traveling twelve miles Sugartown is reached, which, with the exception of Lower Bundick's creek, is the best settlement in North Calcasieu. Here I was very hospitably entertained by a gentleman, originally from Kentucky, who had opened a store in the place, and thereby rendered considerable service to the neighborhood by furnishing all the necessaries and luxuries of civilized life, and thus giving an impulse to agriculture.

The pine hills from Sugartown to Calcasieu river are extremely poor and the farmhouses are scarce, and are only met with at long distances. When I arrived near the Calcasieu bridge, about thirty-five miles from Alexandria, I was informed that the sloughs on the other side of the bridge had been swelled to such an extent by the rain that had fallen the previous day that they could not be passed without swimming. I therefore remained in the neighborhood till the next morning, when I ventured to cross, but found the bridge the most dangerous on account of its dilapidated condition, while the sloughs were just high enough to cover the carriage bed without the necessity of swimming. The low swamp lands on both sides of the river were almost impassable, especially as they were cut up by deep ruts, made by heavily loaded ox wagons, which are constantly passing between this part of the country and Alexandria.

The road from Calcasieu river to Bayou Rapides continues to be sandy and hilly, but is, comparatively speaking, in a passable condition. The abrupt descent of the pine hills and the beautiful level surface of the highly improved alluvial lands of Bayou Rapides, form quite a contrast, which gives to the country a picturesque appearance. Although this part of Rapides is settled by first class gentlemen, yet some parts of the most level road that can be found, were in the most desperate condition. Mudholes are met with which it was impossible to avoid, into which my carriage fell with a plunge,

and thus sank into the soft mire, reaching above the hub of the wheels. I was glad when I landed in safety with my carriage uninjured at General Graham's, where I was received with the utmost kindness, and to whom I owe my acknowledgment for his attention, and for the pleasant and agreeable entertainment he afforded me during my stay at his house.

After having tarried for a few days at General Graham's, I visited the grounds around the old Seminary and made some additional collections. Mrs. and Mr. Seay are entitled to my thanks for the kind treatment I received at their hands while enjoying their hospitalities.

I shipped on the Hodge at Alexandria and returned to Baton Rouge, where I arrived on the eleventh of May.

The result of the spring excursion was highly satisfactory. I found several species of considerable rarity, which though they are not new, yet they have never been described in Southern botanical works.

#### *Northwest Louisiana.*

My summer excursion during this year was principally confined to the parishes of north Louisiana. Starting from Baton Rouge in a Ouachita boat we passed the mouth of Red River and proceeded from there a distance of forty miles to Black river, which, at Trinity, receives the tributary waters of the Ouachita and Tensas rivers, on the first of which Columbia is situated, where I stopped to commence my journey by land. Columbia is a neat little village and seems to be improving. It is a place of considerable inland trade, and the parish site of Caldwell. I crossed the river in a ferry boat, and found the road on the banks of the river, as far as Monroe, in fine traveling order, being perfectly level—it is, during the summer months, one of the best country roads in the State. The plantations in Caldwell, as well as Ouachita, are very fine, the land being entirely alluvial, and they seemed to be well cultivated, although the planters suffered much from the spring rains, the overflow, and partially also from the summer drought. The residences are generally well constructed, neat cottage houses, in good order, and bear evidence, not only of the cultivated taste, but also of the former wealth of the Ouachita planters. The plantations which front the river are all too large, however, under the present labor system, and should

be divided out into smaller places. They would by this means become more manageable, and could be subjected to a more profitable mode of agriculture. The river banks being composed of the brown crumbling loam of the bluff cave to such an extent that in a few years some of the homesteads will have to be moved back to save them from a watery grave.

On Saturday the banks of the Ouachita are every where lined with freedmen engaged in fishing, for during that day all field labor is suspended and the crop has to take care of itself the best it can, for it is more important to have a mess of fish for Sunday dinner than to make corn and cotton grow, which requires considerable exertion and some waste of muscle and nerve.

Monroe is a place of considerable size; it is well built and promises to be the second largest town in North Louisiana. It has many good and some elegant buildings, and whenever the Vicksburg railroad shall be extended to Shreveport it will undoubtedly enlarge its proportions and establish branch connections with Fulton and Alexandria.

At the edge of the town Mr. Pargoud has one of the best improved plantations in the State. It is handsomely fenced in, full grown sycamores, set out at regular intervals, form the posts into which the cross-bars are fitted. The freedmen's houses are all painted white, are very neat and arranged in straight rows, so as to form regular streets, and the whole has the appearance of a flourishing village. The Ouachita river is second only to the Calcasieu in the transparency of its water and the picturesqueness of its banks. The predominant forest growth is the water oak, the sycamore locust and robinia. On the waste lands the bitter weed (*Helenium tenifolium*) and the mullin cover the surface soil and choke out grasses and other weeds.

My stay in Monroe was but of short duration and I continued my route in the direction of Bastrop, in Morehouse parish, twenty-eight miles distant. The cotton plantations on the road, as far as Bayou de Siard, are in a high state of cultivation, but there the road turns to the left and passes over a strip of country composed of brown loam, covering the pebble beds, which are sometimes exposed. There black-jack, post oak, gum and pine predominate. There are but a few scattered huts all along the road inhabited by shingle



cutters. This pine and oak ridge extends into Arkansas and is bounded on the east by Prairie Mer Rouge and Prairie Jefferson, both rich alluvial plantations, and on the west by Bayou Bartholomew. The soil beyond its immediate banks ranks among the best cotton lands in the State.

Bastrop is a small village of about five hundred inhabitants and has some good residences in the outskirts. It has two churches, several stores and a weekly newspaper. About two miles from town Bayou Bartholomew is reached, where the uplands change into alluvion. The bayou is rather a muddy stream, confined within its banks by the same brown crumbling loam of the Ouachita and Red river banks. Bayou de Siard, which, during the summer, is perfectly dry, is merely formed from the backwaters of Bayou Bartholomew. It is a kind of outlet to relieve the main channel of the great volume of water poured into it by the Ouachita at its spring rise.

At the mouth of Bayou Bartholomew the Ouachita river was at least a quarter of a mile wide at the time I crossed it in the Ouachita City ferryboat. Ouachita City is an insignificant place in Union parish, composed of a few houses built on the immediate banks of the river. Here the orange sand intermingled with iron stone pebbles begins, which is the characteristic formation of the whole of North Louisiana west of Ouachita river. The land in Union parish is rather of an inferior quality, producing but one-third of a bale of cotton, even when the land is fresh, which becomes entirely valueless for cultivation in the course of three or four years. This part of Louisiana is inhabited by a great number of small planters, who, for the most part, work themselves, raise their own meat, and are not dependent on the labor of the freedmen. They make a comfortable living, support their families in their own simple way, but have always money enough left to send their children to school at least a portion of the year, when their labor can be dispensed with.

In Northwest Louisiana stores are found at almost every crossroad. They are a great convenience to the small planters. They form the central point of the settlement, where all the neighborhood roads converge, and here are the school houses and meeting houses, as well as the groceries; and here public gatherings are held for political and other purposes. Occasionally these small places receive some high-sounding name, and on this account it may sometimes

happen that the traveler feels very much disappointed on finding out, upon inquiry, that he has long since passed the embryo town which has entirely escaped his notice.

Near Marion there are springs whose water is slightly calybeate, but the place itself presents nothing of interest. I crossed Bayou Loutre at Cherry Ridge on a bridge, and proceeded from there to Farmerville, the parish site of Union. There are some places on this road well cultivated in cotton and corn, and provided with dwelling houses of a neat and comfortable appearance.

Farmerville is a small village, well laid out, and a spirit of improvement seems to be prevalent among its citizens. It is a mile and a half from Bayou d'Arbonne, which is navigable by small steamboats, connecting with the Ouachita river at Trenton. At the time of my visit it happened that there were two lunatics confined in jail, which could not be accommodated in the State Lunatic Asylum at Jackson, and that otherwise peaceable town was exposed to the incessant outcries and the strange and uncouth noises of men who are not accountable and whose action can not be controlled, and this nuisance had to be endured because the State has not erected a building sufficiently large to receive all that may be so unfortunate as to lose their reason.

From Farmerville I traveled to Spearsville, a small place pleasantly situated, with two stores, a meeting house and a school house. The country in the neighborhood is perhaps the best cotton producing region of Union parish.

The road from here to Homer is in a much better condition than any road that I had traveled in the hill country, but the settlements are still poor until within nine or ten miles of town, where the plantations are cultivated by hired freedmen and the houses are well built and neatly painted.

Claiborne is one of the best populated and one of the most flourishing parishes in the northern part of the State. The planters are thrifty and enterprising, and belong to the better class of Georgians, by whom the parish was originally settled. They are mostly Baptists, but the Methodists have lately swelled their numbers considerably.

I was assured that the Claiborne lands are more productive than those of Union. Such a conclusion could not be reached from mere

observation, because the geological formation is precisely the same in both parishes, nor does the vegetation differ, and the soil seems to be in all respects similar. It would be worth while to analyze the soil of Union and Claiborne and ascertain whether the difference of fertility is to be accounted for by the difference of chemical constituents. It is at least possible that the Claiborne soil may contain more lime in a commuted state than is found in the Union parish lands. There can be nothing else in which they can possibly differ in a chemical point of view. They both abound in alumina and silicia, and if iron has any fertilizing property both parishes have enough of that mineral ingredient and to spare. The gray surface soil forms everywhere in North Louisiana, a mere crust not more than from four to six inches deep.

Homer is one of the most pleasant places in that part of the State. Its streets branch out from the Courthouse square, and they are well built up with stores and tastefully constructed residences. Society is quite select, and the citizens are generally engaged in prosperous business, and display considerable public spirit. The male and female colleges are well-conducted schools, and are well deserving of the patronage which they receive.

In the vicinity of Homer the grape is extensively cultivated, and several vineyards planted with the well-known scuppernong, are in a flourishing condition and promise to be successful. Whether the climate of North Louisiana is well adapted for the successful cultivation of the grape can only be ascertained by experience. According to Humbolt's theory the grapevine does not flourish south of thirty-four degrees of north latitude. But some species of grape may be found adapted to the climate of North Louisiana, and if industry and practical skill are brought to bear upon this branch of agriculture, wine making may become a profitable business, requiring but little capital and hardly any hired labor.

Webster parish is in all respects similar to Claiborne, from which it has been, in part, divided off. Minden, the parish site, is a place of some pretensions. It has but a single street, which is from 300 to 400 yards wide, and the numerous forest trees that have been left standing, give to it a somewhat rural appearance. It has many fine storehouses and carries on a thriving trade during the spring season, being at the head of navigation on Dorchitta bayou, which connects with Lake Bisteneau and Red River.



This was the turning point of my homeward journey; but I desired to visit Mount Lebanon in Bienville parish, and therefore deviated from the straight road, leading to a Red River landing.

Bienville parish is less thickly settled, and the plantations seem to be farther apart than in any other of the northern parishes, until Mount Lebanon is reached, which is the center of one of the wealthiest neighborhoods in that part of the State. The place is situated on an elevation, and contains numerous good houses and many stores. There is a small factory in operation here, making jeans and striped cotton cloth, and an institution of learning, intended to be of a high grade, was in a flourishing condition before the war, but has now dwindled down to an academy of some local importance.

I was hospitably entertained here by Dr. Bartholomew Egan and Dr. J. C. Egan, and I am under obligations to both these gentlemen for their courtesy and kind attention.

In a botanical point of view Bienville parish presents greater interest than all the other northern parishes combined. I found here many specimens of rare occurrence, which have not been seen any where else; but this indicates merely that the soil is poorer and agriculture is less flourishing, which is really the fact, for with the exception of a few localities the uplands are principally composed of pure sand, and consequently are valueless for cultivation. The timber is however of good size, and sawmills might do a profitable business here.

Mt. Lebanon is only eight miles from Sparta, which is the parish site, but presents nothing else of interest. It is built on a sandy flat, bordered on each side by a low swamp. Here I found the *froelichia floridana*, a plant that prospers in sandy soil, and grows abundantly in Florida.

From Sparta to Ringgold the road passes over a bridge that spans Black Lake, which is over a quarter of a mile long, and is perhaps the best construction of that kind in North Louisiana. Ringgold is the central point of a prosperous settlement, has several stores, a meeting house and a masonic lodge. From there to Springville, in Red river parish, the road is more level than usual, but the country seems to be very thinly settled. Before Cachtula was built up as the parish site Springville was a prosperous town, but it is now in an extremely dilapidated condition, and the vacant store-houses are all falling to decay.

From Springville I made my last day's journey to Grand Ecore, in Natchitoches parish. The west banks of the Red river are caving very much, like the banks of the Ouachita river, and many an acre of the finest alluvial land is annually swept away by the undermining force of the Red river waters.

Grand Ecore, which is on the east side of the river, is situated on a high bluff, similar to that of Port Hudson, and the layers of the different shades of clay of which the banks are composed are readily distinguished. Grand Ecore is a place of some commercial importance. It is a shipping point for a large area of country, extending as far as Texas, which sends here droves of cattle to be shipped in boats to New Orleans. The town can boast of a good hotel, the only one in North Louisiana that deserves to be recommended. There are quite a number of stores here which seem to do a thriving business.

From here I shipped on the Rapides, and arrived in Baton Rouge on the 25th of August.

#### ECONOMICAL, ARTISTIC AND MEDICINAL USE OF PLANTS COLLECTED.

##### *Trees and Shrubs.*

The red maple (*acer rubrum*) is common in the swamps and lowlands of Louisiana. It grows from forty to fifty feet high, and blooms near New Orleans in the month of February. The blossoms, which are of a deep red, appear about two weeks before the leaves. The fruit, which is called a key or samara, is also of a purplish red, like the flowers.

The growth of the red maple is very rapid; its branches spread out very gracefully, and the brilliant red tints of its autumnal leaves render it one of the most beautiful shade trees. It can be propagated from the seed. The cellular matter of the inner bark furnishes, on boiling, a purplish dye, which is sometimes used by country people as ink, for which it is, however, not very suitable, as it does not dry well, and becomes glutinous in damp weather. The wood has but little strength, and is liable to injury from insects, but it acquires by polishing a glossy and silky surface. It is much employed in the manufacture of various articles of domestic use, such as chairs, etc. It is also used for making saddle trees, shoe lasts and

broom handles. The curled maple is obtained from old trees with undulating fibres. When treated with sulphuric acid and linseed oil, it displays varying shades of color, which equal in lustre the best mahogany. It is now principally applied for stocks of rifles and fowling pieces.

The common American alder (*alnus serrulata*) is a branching shrub, grows in low wet soils, and is extremely common in North Louisiana. The catkins form early in spring, and remain naked through the summer and the following winter, and expand next spring. It is said that charcoal made from alder wood is highly valued in the manufacture of gunpowder. Every part of the plant, especially the bark and cones, are astringent and somewhat bitter. They have been used in intermittent and topical applications. The cones are also used in dyeing, and the leaves and bark in tanning. The wood, though soft and light, if kept submersed or buried in damp earth, is very durable, and the young branches are on this account used for the purpose of filling in drains.

The hornbeam, iron wood (*carpinus Americana*), a small tree, is common on the banks of water courses. It is of a very slow growth; its trunk is rigid, covered with smooth, ash-colored bark. Its wood is exceedingly hard and close-grained, and is sometimes employed by turners for fancy work or for purposes which require compactness and solidity.

The persimmon (*diospyros Virginiana*) is a small tree about twenty or thirty feet high. This is one of the trees that has the male and female flowers, which are small and of a greenish yellow, on different trees. The fruit is not palatable till late in the fall, and when fully mature is distinguished by a peculiar taste, the native astringency being softened by a pungent sweetness which is not unpleasant. If cultivated with care desirable varieties of date plums might be produced, that would be as superior to the native persimmon as the pippin is to the crab apple. The heart wood of the persimmon tree is brown, hard, compact and elastic, but liable to split. Screws, maillets, shoe lasts and wedges have been made of it. It has also been employed by coachmakers for shafts of carriages. The inner bark is very bitter, and has been used in intermittents. Michaux tells us that in the Western States the persimmon is made into cakes with bran, and a beer is thus prepared from it with the



addition of water, hops and yeast. Persimmon beer is an extremely pleasant drink, and it is rather strange that in the Southern States, where this fruit is so abundant, it is not made use of for this purpose in a climate where non-intoxicating refrigerant drinks are so desirable. A spirituous liquor may be obtained from the fermented fruit by distillation, which, it is said, improves with age.

The pecan nut tree (*carya olivaeformis*) is a species of hickory, and grows in Southern Louisiana, attaining a height of from sixty to seventy feet. The nuts of this species are enclosed in a thin, woody husk, and are smooth and of a brown color, shaped somewhat like an olive. The kernel is very sweet and superior in flavor to that of the shellbark and the other hickory species. The timber is coarse-grained, of great strength, very tough and heavy, but is liable to attacks of insects, and is not suitable for building purposes.

The wax myrtle (*myrica cerifera*) is an indigenous shrub, and grows most abundantly in the pine flats of Calcasieu and elsewhere in sandy soil. The leaves when bruised are very fragrant. The berries are coated with wax, which is collected by boiling them in water, when the wax melts and rises to the surface. It is often used under the name of bay berry tallow, for the manufacture of candles, and the making of soap. It is also employed for stiffening the ends of circular lamp wicks. The powdered bark has a peculiar aromatic odor, and astringent properties.

The sweet bay (*magnolia glauca*) is a small tree and grows in great abundance in North Louisiana, not merely in swampy soil, but near the sand hills. It bears large, cream-colored, odorous flowers, and has thick shining leaves. It is a beautiful ornamental tree, and should be found in the South in every garden where the *magnolia grandiflora* flourishes. The wood is sometimes used for making joiners' tools. The bark, which is aromatic and pungent, is sometimes employed by country people in intermittent fever. A tincture is also made of it which has been administered in chronic rheumatism.

The cape jasmine (*gardenia granceiflora*) is one of the finest evergreen shrubs of the gardens. It is cultivated on account of the fragrance and beauty of its double white flowers. It is indigenous at the Cape of Good Hope.

The tree of heaven (*ailanthus glandulosa*) is a large tree of very

rapid growth, reaching the height of sixty feet. It is a native of India, of northern China, and it grows in the neighborhood of Peking. It is a beautiful shade tree, but is much objected to on account of the peculiar odour of its flowers.

The wood of this species is very hard, compact, of a deep red color, and is often beautifully veined of a deep red and golden tint. It is susceptible of the finest polish, and has a fine satin-like lustre, which renders it well suited for cabinet making. The leaves are not liable to the attacks of insects, and it has lately been asserted that cattle feeding on them are exempt from murrain. The bark has been recommended as a vermifuge, especially for the expulsion of tape worm. It has been suggested to cultivate this tree on the prairie lands on account of the facility of its propagation and the rapidity of its growth.

The Japan plum (*mespilus japonica*) is an evergreen tree, and is planted in Louisiana for its fruit as well as for ornament. It has large leathery leaves, and whitish flowers which grow in clusters at the summit of the branches. It produces its blossoms as late as November, and ripens its fruit early in spring. Its foliage is very thick and it is a highly valued shade tree.

The soap berry, wild China tree (*sapindus marginatus*) is a tree of moderate size, and grows in the swampy lowlands of the Calcasieu prairies. It has pinnate leaves and greenish flowers. The fruit is fleshy externally and resembles the China berry. The seeds are round, excessively hard, and might be employed for making buttons. The fruit of some of the species growing within the tropics are used as a substitute for soap, their outer coating containing a saponaceous principle in sufficient abundance to produce a lather with water.

The sweet-leaf (*symplocos tinctoria*) is a small tree, bearing smooth, coriaceous leaves and small yellow flowers. It grows on Bushy creek, in Calcasieu parish. The leaves have a sweetish taste, and are a favorite food for cattle. They are also used in Georgia and Carolina for dyeing yellow. They probably possess some medicinal property, and if previously parched so as to destroy their astringency, the infusion might serve as a substitute for tea.

The Japan privet (*Ligustrum Japonicum*) is a middle-sized tree much cultivated. It has dark green coriaceous leaf and clusters of small white flowers. It is an evergreen, and its bunches of purplish

berries remain on the tree until the spring flowers appear. The leaves, the bark and the berries have similar properties of those of the common privet.

The poison sumac, poison elder (*Rhus venenata*) is a tall shrub with pinnate leaves composed of eleven or thirteen smootish leaflets. It has whitish papery looking berries. It was once considered identical with a species of *Rhus* which grows in Japan and furnishes a black varnish. The opaque whitish fluid which exudes from it becomes black on exposure, and may be made to yield a durable, glossy varnish by sufficiently cooling it before it is applied. It is exceedingly poisonous to some persons who come in contact with it.

*Horticultural, Agricultural, and Medicinal Plants.*

The hyacinth (*Hyacinthus orientalis*) is a well-known genus of very handsome lilaceous bulbs. It is a native of the East, and has been cultivated from time immemorial as one of the prettiest early spring flowers of the gardens.

Asparagus (*Asparagus officinalis*) is a perennial and herbaceous plant ; it is a native of several places in England, on the sea coast. The steppes of Southern Russia and Poland are covered with this plant, and it is eaten by horses and cattle like grass. It is also common in Greece and was esteemed as a culinary vegetable by the Greeks and Romans. It appears to have been cultivated in the time of Cato the Elder, 200 years B. C., and Pliny mentions a variety that grew in his time near Ravenna, of which three heads would weigh a pound. In this country it is considered as one of the most delicate of our culinary vegetables. The part of the plant used is about six or eight inches of the young shoot, which is considered to be fit for cutting when it has emerged two or three inches out of the ground, and has a firm, compact, roundish point, of a fine green color, slightly tinged with purple. Before the young shoots are boiled they have a disagreeable taste, due to a crystallizable principle called esparagin which produces sedative effects on the circulation. When properly prepared it is a wholesome and very useful article of diet. In medicine it is well known for its diuretic properties. It has been found beneficial in gravel and dropsey. The seeds have been dried as a substitute for coffee, which, when roasted or parched like coffee, they are said to resemble in flavor.



The indigo plant (*Indigofera amil*) is a native of the West Indies, and has formerly been cultivated, on an extensive scale, in the Southern States. But the abundant supply from India rendered the cultivation unprofitable, and it has been superseded by cotton and rice.

The use of indigo as a dye is of great antiquity. It is mentioned by Dioscorides and Pliny, and is said to have been employed by the ancient Egyptians. It was, however, not much used in Europe till about three centuries ago. As met with in commerce indigo usually consists of cubical cakes, measuring between two or three inches. It is prepared by throwing bundles of the fresh cut plants into shallow vats and covering them with water, care being taken to keep them under the surface. After steeping for ten or twelve hours the liquid is run off into another vat and beaten with sticks from one and a half to three hours, in order to promote the formation of the blue coloring matter, which does not exist ready-formed in the tissues of the plants, but is generated during fermentation by the union of oxygen with a substance called indicum and which is contained in the plant. The coloring matter is then allowed to settle, the precipitation being accelerated by the addition of a small quantity of lime water or an alkaline solution, and the supernatant liquor drawn off and thrown away, while the precipitated matter is put into a boiler and kept at the boiling point for five or six hours. It is then spread upon frames covered with linen cloth and allowed to drain for twelve or fourteen hours, and when it is sufficiently solid, it is pressed, cut into cubes, stamped and dried for the market. Indigo is still cultivated in Florida for local use. It has been used for the cure of epilepsy, but large doses invariably produce nausea.

The okra plant (*Abelmoschus esculentus*) is a native of the West Indies and belongs to the Mallow family. It is cultivated for its green capsules, which abound in mucilage, and are used for thickening soup. The young parts are sometimes pickled like capers. The stem furnishes excellent fibres, but they have not yet been made serviceable for any economical purpose. The leaves are sometimes employed for emollient poultices. The roots, which are a foot or two long, are said to abound in mucilage.

The banana (*muss sapientium*) has been cultivated from the most remote times in tropical climates for the sake of its fruit, which it

produces in enormous quantities with very little attention. In the ripe state the fruit is more or less mawkish, for the starch which abounds in the unripe fruit becomes converted into mucilage and sugar. It is highly nutritious, though less so than wheat and potatoes; yet the space occupied by their culture and the care required are so much less that Humbolt has calculated the produce of bananas, compared to that of wheat, as one hundred and thirty-three to one, and to that of potatoes as forty-four to one.

The Irish potato (*solanum tuberosum*) is cultivated for its underground branches or tubers in all parts of the world. The introduction of the potato in England is ascribed to certain colonists under the auspices of Sir Walter Raleigh, who brought it from Virginia. The plant is indigenous in Chili and Peru. The potato contains water amounting to three-fourths of its weight, and the remaining fourth part being made up of starch, gum, sugar, albumen, vegetable fibre and a very small proportion of fatty matter.

Potatoes in cultivation are subject to a disease which is owing to the presence of a fungus called *batrytis infestans*, which first attacks the leaves, causing discoloration, and thence spreads rapidly down the stem to the tubers. The principal effect of the disease consists in the increased quantity of water, the diminished quantity of starch and the conversion of the albumine into casein.

Potatoes contain a great quantity of starch, which is frequently mixed with wheat flour in the manufacture of bread. This adulteration can readily be detected by the microscope, especially on the addition of a solution of potash, which causes the starch granules of the potato to swell up, while no effect is produced on the starch grains of wheat. The pulp of the potato, after the extraction of the starch, becomes hard and horny when dried, and in this form it is used in the manufacture of snuff boxes.

Raw potatoes scraped are used as a popular cooling application to burns and scalds.

The tubers of this plant yield a coarse tasting brandy by distillation. The unripe berries of the potato plant are asserted to be narcotic, and an extract prepared from the leaves has been employed in coughs and spasmodic affections.

The varieties of the potato are very numerous, some are early and some late, and these differ in size, quality and color. It has

been found when a particular variety has been grown in the same soil, for any length of time, it degenerates and requires to be renewed either by seed, but more frequently by resorting to varieties which have been grown in different soil and locality.

As a culinary vegetable the potato is susceptible of being dressed in numerous ways, thus furnishing a great variety of palatable dishes. It is said that Parmentier, who did so much in France to promote the cultivation of the potatoe, gave a grand entertainment in Paris, at which Benjamin Franklin and Lavoisier, and many other celebrated men were present, of which every dish consisted of potatoes dressed in an endless variety of form and fashion; even the liquors that graced the potato banquet, were the produce of this precious tuberous stem.

The blue flag (*Iris versicolor*) is found in the greatest abundance in the prairie swamps of St Landry and Calcasieu. Its large, bright blue flowers shaded with yellow make it quite an object of attraction. They afford a fine blue infusion which is employed as a test of acids and alkalies. The recent root or rhyzoma is without odor, and has a nauseous acrid taste which is imparted to water by decoction, and still more perfectly to alcohol. It possesses cathartic, emetic, and diuretic properties, and was much esteemed for its medicinal virtues by the Southern Indians. It is however seldom used by the profession, and it may be administered in substance decoction or tincture.

The Indian hemp (*apocynum cannabinum*) exudes a milky juice when wounded, which, when sufficiently dried, exhibits the properties of india rubber. It has a tough, fibrous bark, which by maceration affords a substitute for hemp, of which the Indians make twine, bags, fishing nets and lines, as well as linen for their own use. The root is the part of the plant which is medicinally employed. It is powerfully emetic and cathartic and sometimes diuretic, and promotes diaphoresis and expectoration. The disease in which it has been found most beneficial is dropsy. The bark of the root has also been employed in intermittents, and is considered only inferior to quinine in its antiperiodic power. The decoction is the most convenient preparation.

The gravel root (*eupatorium purpureum*) is a perennial herbaceous plant, from five to six feet high. It has been found in the low



grounds near Farmersville in Union parish. The root has a bitter, aromatic and astringent taste, and is said to operate as a diuretic, and hence its common name.

The stimulant *cnidoscolus* or tread softly (*cnidoscolus stimulosa*) is a plant peculiar to the Southern States. It grows to the height of two feet on the banks of Bundick's creek in Calcasieu. It flourishes in sandy soil. It has palmately lobed leaves from four to eight inches long. The segments are covered with spreading hair, which sting fearfully the bare feet of the negroes when they tread on them, from whence its common name is derived. It has whitish flowers, and it is said that its tuberous roots are eatable, like those of the cassava or manihot.

The ground nut (*apios tuberosus*) is an elegant climbing plant, having lateral clusters of brownish purple sweet-scented flowers. It grows luxuriantly in the low grounds near Mount Lebanon. It would make an attractive, ornamental climber of the gardens. The roots bear fleshy tubers, which are very nutritious, and might be substituted for potatoes during years of scarcity.

The horehound (*marrubium vulgare*) has been naturalized in America, and is found on Bayou Rapides near dwelling houses and stables and by the roadside. It has a strong, rather agreeable odor, which is diminished by drying. It possesses tonic properties. It is employed chiefly in domestic use, in catarrhal affections and diseases of the lungs attended with cough and copious expectoration. It is taken in the form of infusion. It is also a well known ingredient of cough-candy.

Common sage (*salvia officinalis*) grows spontaneously in the south of Europe, and is cultivated in the gardens on account of its aromatic properties. The leaves have a strong, fragrant odor, and a warm, bitterish, aromatic, somewhat astringent taste. They abound in volatile oil, which may be obtained by distillation with water, and contains a considerable proportion of camphor. Sage is slightly tonic and astringent. It was highly esteemed by the ancients; it is, however, at present but little used internally except as a condiment. The infusion is said to have been used in checking the sweats of hectic fever. It is also employed with honey and vinegar as a gargle in inflammation of the throat.

Balm (*melissa officinalis*) is a native of the south of Europe. It

has been introduced into this country and is much cultivated in the gardens. It has a fragrant odor very similar to that of lemons in the fresh state, but it should be cut before the appearance of the flowers. The taste is somewhat austere and slightly aromatic. The herb contains a minute proportion of yellowish essential oil. The infusion forms an excellent drink in febrile complaints, and balm tea has a tendency to promote perspiration.

Rue (*ruta graveolens*) is a native of the south of Europe, and is sometimes cultivated in the gardens. It is somewhat a shrubby plant, two or three feet high, with blueish green leaves pinnately divided. The powerful fetid odor and acrid taste of this plant depends on the presence of volatile oil. The ancients used it as a condiment, and believed it to possess the property of resisting the action of poison. For ages it was considered most effective to ward off contagion, and it is still employed to keep off noxious insects. It enters into the composition of the French perfume called "Vinegar of the Four Thieves." The Italians are stated to eat it as a salad. Shakspeare speaks of rue as the "herb of grace."

The whole herb has active medicinal properties, but the leaves are most commonly employed. The recent leaves have so much acrimony as to inflame and even blister the skin when much handled. Rue is a stimulant and antispasmodic. In moderate doses it is an emenagogue, and in large doses produces such irritation in the uterus as to bring on abortion.

Coriander (*coriandrum sativum*) is a native of Italy and the Levant, but is naturalized all over Europe and cultivated in America. All parts of the fresh plant are extremely fetid when bruised, while the globular fruit becomes fragrant by drying. The smell and taste of coriander seed are gratefully aromatic, and depend on a pale-yellow volatile oil, which may be obtained by distillation. Coriander has in a moderate degree the ordinary medicinal virtues of the aromatics. It was well known to the ancients, and is now principally employed to cover the taste of other medicines or correct their griping qualities.

*Description of the New Species of Polyporus referred to in the lists Named and Described by Professor H. W. Ravenel, Aiken, South Carolina.*

*Polyporus (Inodermei) Featherman, nov. spec.* Pileo rigido, coriaceo; setis crassis vestito; convexo-plano, niquescente-umbrino;

porus <sup>rotundis</sup>, minutis, dissepimentis, tenuibus, hymenio concolore.  
Ad truncos dejectos.—*Ravenel*.

This new species of polyporus is stemless; the pileus is oblong, with a regularly rounded upper margin, and an irregularly linear lower margin. It is from two to four inches long, and from one to two inches wide, and not more than four lines in thickness. The pileus is rigid and coriaceous, of a dark brown on the upper surface, and its lower surface is covered with thick-set, stiff, bristly black hair.

Halulat. It grows on logs and old trees in pine and oak woods, and was found in North Louisiana, near Minden and Homer, in the month of August.



# FLORA LUDOVICIANÆ.

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## PHÆNOGAMOUS OR FLOWERING PLANTS.

### RANUNCULACEÆ—*Crowfoot Family.*

*Ranunculus pusillus* Poir. var. *R. oblongifolius* Ell., *R. Texanus* Gr. & Engelm, Oblong-leaved Crowfoot, Calcasieu Prairies, Calcasieu.

### MAGNOLIACEÆ—*Magnolia Family.*

*Magnolia glauca* L., Sweet Bay, Minden, Webster parish.

*Magnolia umbrella* Lam., *M. tripetala* Michx., Umbrella-leaved *Magnolia*, Baton Rouge, East Baton Rouge.

### NYMPHÆACEÆ—*Water Lily Family.*

*Nymphæa odorata* Ait., Pond Lily, Terrebonne Station, Terrebonne.

### SARRACENIACEÆ—*Pitcher Plant Family.*

*Sarracenia flava* L., Trumpet-leaf, Watches, Pine swamps, Calcasieu.

### FUMARIACEÆ—*Fumitory Family.*

*Corydalis aurea* Willd., Golden *Corydalis*, New Orleans, Orleans.

### VIOLACEÆ—*Violet Family.*

*Viola lanceolata* L., Lance-leaved Violets, Pine-flats, Calcasieu.

*Viola pedata*, L., Pedate Violet, Pine-flats, Calcasieu.

### CISTACEÆ—*Rock-Rose Family.*

*Helianthemum Carolinianum* Mich., Carolina Rock-Rose, Pine-flats, Calcasieu.

*Leche minor* Lam., *L. racemulosa* and *S. tenuifolia* Mich. Small-leaved Leched, Pine-flats, Calcasieu.

DROSERACEÆ—*Sundew Family.*

*Drosera brevifolia* Pursh, Short-leaved Sundew, Pine Woods, Lake Charles, Calcasieu.

HYPERICACEÆ—*St. John's Wort Family.*

*Hypericum pilosum*, Walt., Hairy Hypericum, Cherry Ridge, Union.

*Hypericum maculatum*, Walt., Spotted Hypericum, Bastrop, Morehouse.

*Hypericum Drummondu*, Tor. and Gr., Drummond's Hypericum, Farmersville, Union.

PORTULACACEÆ—*Purslane Family.*

*Claytonia Virginica*, L., Virginia Spring Beauty, Opelousas, St. Landry.

*Portulacca grandiflora*, Showy Purslane, cultivated, native of Africa.

MALVACEÆ—*Mallow Family.*

*Abelmoschus esculentus*, Okra, cultivated, native of West Indies.

OXALIDACEÆ—*Wood Sorrel Family.*

*Oxalis violacea*, L., Purple Wood Sorrel, Bundick's creek, Calcasieu.

RUTACEÆ—*Rue Family.*

*Ruta graveolens*, L., Common Rue, cultivated, native of south of Europe.

*Ailanthus glandulosa*, Desf., Tree of Heaven, introduced, native of China and Japan.

ANACARDIACEÆ—*Cashew Family.*

*Rhus venenata*, D. C., Poison Alder, O. Seminary, Rapides.

*Rhus aromatica*, Ait., Aromatic Sumac, Ringgold, Bienville.

VITACEÆ—*Vine Family.*

*Vitis Caribaea*, D. C., Caribbean Grape, Bushy Creek, Calcasieu.

*Vitis bipinnata*, Tor. and Gr., *Ampelopsis bipinnata*, Michx., double primate grape vine, Baton Rouge, East Baton Rouge.

SAPINDACEÆ—*Soap-Berry Family.*

*Sapindus marginatus* Willd, Soap berry, Wild China tree, Lake Charles, Calcasieu.

ACERNOCEÆ—*Maple Family.*

*Acer rubrum* L., Red Maple, Springville, Red River Parish.

POLYGALACEÆ—*Milkwort Family.*

*Polygala verticillata* L., Whorl-leaved Milkwort, Pine-flats, Calcasieu.

LEGUMINOSÆ—*Pulse Family.*

*Trifolium reflexum* L., Buffalo Clover, Prairie Mounds, Calcasieu; *Psoralea melilotoides* Michx, Melilot-like Psorale, Prairies, St. Landry and Calcasieu; *Wistaria frutescens* D. C. *Thyrsanthus frutescens*, Ell., Shrublike Wistaria, Lake Charles, Calcasieu; *Indigofera*, Anil L., West India, Indigo Plant, Introduced, Marion, Union; *Viola Levenworthii* Tor. and Gr., Leavenworth's Vetch, Lake Charles, Calcasieu; *Lespedeza striata* Arnot., Striated Bush-Clover, Introduced, Grand Ecore, Natchitoches; *Lespedeza repens* Tor. and Gr., Creeping Bush-Clover, Bastrop, Morehouse; *Lespedeza violacea* Pers., Violet Bush Clover, Prairie, St. Landry; *Lespedeza violacea* Pers., var. *sessiliflora* Michx Leasiles-flowered Bush-Clover, Homer, Claiborne; *Rhynchosia tomentosa* Tor. and Gr., var. *monophylla* Tor. and Gr., One-leaved Rhynchosia, Pine-flat, Calcasieu; *Apios tuberosa* Moench., Ground Nutt, Mount Lebanon, Bienville; *Phaseolus sinuatus* Nutt, Sinuate-leaved Bean, Bastrop, Morehouse; *Erythrina herbacea* L., Herbaceous Erythrina, Bushy Creek, Calcasieu; *Baptisia leucophaea* Nutt, Whitish-flowered Baptisia, Prairies, Calcasieu; *Baptisia leucantha* Tor. and Gr., White-flowered Baptisia, Prairie Swamps, Calcasieu; *Mimosa strigillosa*, Tor. and Gr., Hook-prickled Sensitive Plant, Prairies, Calcasieu.

ROSACEÆ—*Rose Family.*

*Rosa Carolina* L., Carolina Rose, Bastrop, Morehouse.

*Crataegus flava* Ait., Yellow Hawthorn, Tree, Grand Ecore, Natchitoches.



*Mespilus Japonica*, Japan *Mespilus*, tree, introduced, native of Japan.

ONAGRACEÆ—*Evening Primrose Family.*

*Gaura Lindheimeri*, Gr. and Engelm, Lindheimer's *Gaura*, prairies, Calcasieu.

*Oenothera linearis* Michx., Linear-leafed Evening Primrose, Grand Coteau, St. Landry.

*Oenothera fruticosa* L., shrubby *Oenothera*, Grand Coteau, St. Landry.

*Oenothera fruticosa*, var. *hirsuta*, Tor. and Gr., Hirsute Evening Primrose, Grand Coteau, St. Landry.

*Oenothera linifolia* Nutt, Pine-leafed Evening Primrose, prairies, St. Landry.

*Ludurigia linearis*, Walt., Linear-leafed seed-box, Ville Platte, St. Landry.

*Myriophyllum scabratum*, Michx., Rough-leafed Water Milfoil, prairie swamp, St. Landry.

*Myriophyllum*, *heterophyllum*, Michx., Various-leafed Water Milfoil, prairie swamp, St. Landry.

UMBELLIFERÆ—*Parsley Family.*

*Polytaenia Nuttallii*, D. C., Nuttall's *Polytaenia*, prairies, St. Landry.

*Eryngium Yuccaefolium*, Michx., Bear-grass-leafed Button Snake-root, Bastrop, Morehouse.

*Eryngium virgatum*, Lam., Straight-stemmed Button Snakeroot, O. S., Rapides.

*Coriandrum Sativum*, L., Coriander, Cultivated, native of South of Europe.

CORNACEÆ—*Dogwood Family.*

*Cornus sericea* L., Red Osier, Bayou Rapides, Rapides.

CAPRIFOLIACEÆ—*Honeysuckle Family.*

*Viburnum acerifolium* L., Maple-leafed *Viburnum*, Mount Lebanon, Bienville.

*Viburnum scabrellum*, Tor. and Gr., Rough-leafed Viburnum; Ringgold, Bienville.

*Viburnum dentatum* L., Tooth-leaf Viburnum, Minden, Webster.

*Viburnum nudum* L., Naked Stalked Viburnum, Hummocks in pine flats, Calcasieu.

*Viburnum odoratissimum*, Sweet-scented Viburnum, cultivated.

#### RUBIACEÆ—*Madder Family.*

*Galium uniflorum* Michx., One-flowered Galium, Mount Lebanon, Bienville.

*Galium trifidum* L., Dyer's Clevers, Goose-Grass, Nez Pique, Calcasieu.

*Oldenlandia* prepared Gray, Purple Bluets, Six-mile creek, Calcasieu.

*Gardenia grandiflora*, Cape Jessamine Cultivated. Native of Cape of Good Hope.

*Bodleya Lindleya*, Lindley Bodleya, cultivated.

#### VALERIANÆ—*Valerian Family.*

*Fedia radiata* Michx., radiate flowered, Lamb-Lettice, Lake Charles, Calcasieu.

#### COMPOSITE—*Composite Family.*

*Elephantopus tomentosa* L., *E. nudicaulis* Ell., Soft-haired Elephant's Foot, Farmersville, Union.

*Liatris scariosa*, Willd., *L. spheroidia* Michx., Ragged Button Snakeroot, Springville, Red River parish.

*Eupatorium dromaticum* L., Aromatic Eupatorium, Ouachita uity, Union.

*Eupatorium purpureum* L., Purple-flowered Eupatorium, Farmersville, Union.

*Eupatorium linearifolium* Walt., Linear-leafed Eupatorium, Homer, Claiborne.

*Aster phyllolepis* Tor. and Gr. Scaly-leaf Aster, O. Seminary, Rapides.

*Erigeron tenue*, Slender Erigeron, Grand Coteau, St. Landry.

*Diplopappus linearifolius* Hook., Linear-leafed Diplopappus, Old Seminary, Rapides.

*Solidago nitida*, Shining Solidago, Old Seminary, Rapides.

*Solidago tenuifolia* Pursh., Slender-leafed Solidago, Minden, Webster.

*Solidago Bootii* Hook., Boot's Solidago, Minden, Webster.

*Solidago caesia* L., Grayish-leafed, Old Seminary, Rapides.

*Isopappus divaricatus* Tor. and Gr., *Chrysopsis divaricata* Nutt., Diffuse branches, Isopappus, Sparta, Bienville.

*Chrysopsis Mariana* Nutt, Mariana's Golden Aster, Sparta Bienville.

*Silphium Scaberrimum* Ell., Rough-leafed Silphium, Bastrop, Morehouse.

*Silphium perfoliatum* L., var., Perfoliate Silphium, Bastrop, Morehouse.

*Heliopsis laevis* Pers., Smooth Heliopsis, Lake Charles, Calcasieu.

*Echinacea angustifolia* D. C., Narrow-leafed Echinacea, prairies and pine flats, Calcasieu.

*Rudbeckia fulgida* Ait., Bright-leafed Rudbeckia, Bastrop, Morehouse.

*Helianthus strumosus* L., Strummous Helianthus, Bastrop, Morehouse.

*Coreopsis verticillata* L., Whorl-leafed Coreopsis, Marion, Union.

*Hymenopappus scabiosæus* L'Herit., Scurfy Hymenopappus, pine flats, Calcasieu.

*Leptopoda fimbriata* Tor. and Gr., Fringe-flowered Leptopoda, pine flats, Calcasieu.

*Marshallia lanceolata*, Pursh., Lance-leafed Marshallia, pine flats, Calcasieu.

*Cacalia ovata* Walt., Ovate-leaved Cacalia, prairies, St. Landry.

*Apogon humilis* Ell., Low-stemmed Apogon, Bayou Rapides, Rapides.

*Krigia Carolina* Nutt., *K. leptophylla* D. C., Carolina Krigia, Grand Coteau, St. Landry.

*Lactuca elongata*, var. *integrifolia* Muhl., Entire-leafed Lettuce, Mt. Lebanon, Bienville.

*Tagetes patula*, French Marigold, Cultivated, Native of Tropical America.

#### ERICACEÆ—Health Family.

*Vaccinium arboreum* Michx., Tree-like Blueberry, Old Seminary, Rapides.



*Vaccinium myrsinites* Michx., Myrtle-leaved Blueberry, Old Seminary, Rapides.

AGUIFOLIACEÆ—*Holly Family.*

*Ilex ambigua* Chapm., Ambiguous Holly, Old Seminary, Rapides.

STYRACEÆ—*Storax Family*

*Styrax pulverulentum*, Michx., powdery-leaved starax, Lacasien Bayou, Calcasieu.

*Symplocos tinctoria* L'Herit, sweet-leaf, Bushy Creek, Calcasieu.

EBENACEÆ—*Ebony Family.*

*Diospyros Virginiana* L., persimmon, Lake Charles, Calcasieu.

PLANTAGINACEÆ—*Plantain Family.*

*Plantago heterophylla*, Nutt., various-leaved plantain, Opelousas, St. Landry.

LENTIBULACEÆ—*Bladderwort Family.*

*Utricularia cornuta*, Michx., horned bladderwort, pine swamps, Calcasieu.

*Pinguicula pumila*, Michx., low-stemed butterwort, pine flats, Calcasieu.

SCROPHULARIACEÆ—*Figwort Family.*

*Verbascum Blattaria* L., Moth Mullein, naturalized, Minden, Webster.

*Gratiola pilosa*, Michx., Hairz Hedge-Hyssop, Marion, Union.

*Gratiola sphaerocarpa*, Eil., round-fruited hedge-hyssop, Opelousas, St. Landry.

*Conobaea multifida*, Benth., cut-leaved conobaen, Port Hudson, East Feliciana.

*Castilleja coccinea*, Spreng., painted cup, prairies, St. Landry and Calcasieu.

*Schwalbea Americana*, L., chaff-seed, pine flats, Calcasieu.

*Pedicularis Canadensis*, L., Lousewart, pine flats, Calcasieu.

ACANTHACEÆ—*Acanthus* Family.

*Dipteracanthus oblongifolius*, Chapm., *Ruellia oblongifolius*, Michx., long-leafed *Ruellia*, Farmersville, Union.

VERBENACEÆ—*Vervain* Family.

*Verbena canescens*, Kunth., Hoary-leafed Vervain, Bastrop, Morehouse.

*Clerodendron*, (*Siphonanthus*), Turk's-head, introduced, waste places, East Baton Rouge.

LABIATE—*Mint* Family.

*Hedeoma hispida* Pursh., Hispid-leafed Penny royal, Probably introduced, O. Seminary, Rapides.

*Melissa officinalis* L., Balm, introduced, Homer, Claiborne.

*Salvia officinalis* L., garden sage, cultivated, native of South of Europe.

*Scutellaria pilosa* Michx., Hairy scullecup, Homer, Claiborne.

*Marrubium vulgare* L., Horehound, introduced, Bayou Rapides, Rapides.

*Physostegia Virginiana* Benth., var. *P. denticulata*, Toothed-leafed False Dragon Head, Lake Charles, Calcasieu.

POLEMANIACEÆ—*Polemnium* Family.

*Phlox Walteri* Chapm., Walter's Phlox, prairies and pine-flats, Calcasieu.

*Phlox glaberrima* L., Smooth Phlox, Bastrop, Morehouse.

CONVOLVULACEÆ—*Convolvulus* Family.

*Quamoclit vulgaris* Chois., Cypress-Vine, introduced, Baton Rouge, East Baton Rouge.

*Evolvulus sericeus* Swartz. Silk-leafed *Evolvulus*, Lake Charles, Calcasieu.

SOLANACEÆ—*Nightshade* Family.

*Solanum tuberosum* L., Potato, Cultivated, Native of Chili and Peru.

*Solanum Melongena* L., Egg Plant, Cultivated, Native of South America.

*Cestrum* (?) Escaped from the gardens, Native of Brazil.

APOCYNACEÆ—*Dogbane Family.*

*Apocynum camabinium* L., Indian Hemp, Lake Charles, Calcasieu.  
*Amsonia Tubernæ modtana* Walt., *A. salicifolia* Pursh., Willow-leaved Amsonia, Lake Charles, Calcasieu.

ASCLEPIADACEÆ—*Milkweed Family.*

*Asclepias variegata*, L., Variegated Milkweed, Bushy Creek, Calcasieu.

*Acerates paniculata*, Decaisne, Bunch-flowered Acerates, prairies and pine flats, Calcasieu.

OLEACEÆ—*Olive Family.*

*Ligustrum Japonicum*, Japan Privet, tree, introduced; native of Japan.

NYCTAGINACEÆ—*Four O'Clock Family.*

*Boerhaavia erector*, L., Straight-stemmed Boerhaavia, Homer, Claiborne.

PHYTOLACCACEÆ—*Pokeweed Family.*

*Rivina lacois*, L., *R. pertulacoides*, Nutt., Smooth Rivina, New Orleans, Orleans.

AMARANTACEÆ—*Amaranth Family.*

*Froelichia Floridana*, Moquin., Florida Froelichia, Sparta, Bienville.

EUPHORBIACEÆ—*Spurge Family.*

*Euphorbia maculata*, L., Spotted-leaved Spurge, Sparta, Bienville.  
*Euphorbia cordifolia*, Ell., Heart-leaved Spurge, Sparta, Bienville.  
*Euphorbia humifusa*, Engelm., Prostrate Spurge, Baton Rouge, East Baton Rouge.

*Cnidosculus stimulosus*, Gray, *Iatropa stimulosa*, Michx., Stinging Cnidosculus, Bundick's Creek, Calcasieu.

URTICACEÆ—*Nettle Family.*

*Boehmeria cylindrica*, Willd., Cylinder-stemmed False Nettle, Farmersville, Union.

*Boehmeria nivea* ? Ramie, cultivated; native of China.



JUGLANDACEÆ—*Walnut Family.*

*Carya olivaeformis* Nutt., Pecan nut, Lake Charles, Calcasieu.

CUPULIFERÆ—*Oak Family.*

*Carpinus Americana* Michx., Hornbeam, Springville, Webster.

MYRICACEÆ, WAX—*Myrtle Family.*

*Myrica cerifera* L., var. *M. pumila* Michx., Low shrubbed Wax-myrtle, Pine-flats, Calcasieu.

BETULACEÆ—*Birch Family.*

*Alnus serrulata* Ait., Common Alder, Farmersville, Union.

ORCHIDACEÆ—*Orchis Family.*

*Calopogon parviflorus* Lindl., Small-flowered Calopogon, pine swamps, Calcasieu.

*Calopogon pulchellus* R. Br., Fair-flowered Calopogon, pine barrens, Rapides.

*Platanthera cristata* Lindl., Crest-flowered Platanthera, Homer, Claiborne.

*Bletia aphylla* Nutt., Leafless Bletia, Minden, Webster.

AMARYLLIDACEÆ—*Amaryllis Family.*

*Pancratium rotatum* Ker., *P. Mexicanum*, Wheel-flowered Pancratium, Lake Charles, Calcasieu.

*Agave Virginica* L., Virginia Agave, Ringgold, Bienville.

HÆMODORACEÆ—*Bloodwort Family.*

*Aletris farinosa* L., Mealy-flowered Star-Grass, prairie and pine-flats, Calcasia.

IRIDACEÆ—*Iris Family.*

*Iris versicolor* L., Variegated Iris, prairie swamps. St. Landry and Calcasieu.

*Sisyrinchium Bermudiana* L., Blue-eyed grass, prairies, St. Landry and Calcasieu.

*Sisyrinchium anceps*, Two-edged stemmed *Sisyrinchium*, prairies, Calcasieu.

LILIACEÆ—*Lily Family.*

*Allium mutabile* Michx., Changeable Wild Onion, prairies, St. Landry, Pine-flats, Calcasieu.

*Allium striatum* Jacq., Striate-leafed Wild Onion, prairies, and pine-flats, Calcasieu.

*Hemerocallis fulva*, Common Day Lily, Cultivated, native of Levant.

*Hyacinthus orientalis*, Hyacinth, Cultivated, native of Levant.

*Asparagus officinalis* L., Asparagus, Cultivated, native of England.

JUNCACEÆ—*Rush Family.*

*Cephaloxys flabellata*, Desv., *Juncus repens* Michx., Fan-branched Cephaloxis, Minden, Webster.

COMMELYNACEÆ—*Spiderwort Family.*

*Tradescantia rosea* Vent., Rose-flowered Spiderwort, Opelousas, St. Landry.

XYRIDACEÆ—*Yellow-Eyed Grass Family.*

*Xyris flexuosa* Muhl., *Xyris bulbosa* Kunth., Flexible-stemmed Yellow-Eyed Grass, Grand Ecore, Natchitoches.

MUSACEÆ—*Musa Family.*

*Musa Sapientium*, Banana, Caldwell, Native of West Indies.

CYPERACEÆ—*Sedge Family.*

*Fuirena squarrosa*, Mich. var. *aristulata*, Tor., Bristle-fruited *Fuirena*, Homer, Claiborne.

*Eleocharis acicularis*, R. Br., Bristle-headed Spike Rush, Minden, Webster.

*Scirpus pungens*, Vahl., *S. Americanus*, Pers., American Bulrush, Homer, Claiborne.

*Isolepis carinata*, Hook and Arn, Carinate *Isolepis*, prairies, St. Landry.

*Isolepis ciliatifolia*, Tor., *Scirpus ciliatifolius*, Fringe-leafed *Isolepis*, Minden, Webster.

*Rhynchospora miliacea*, Gray, *R. sparsa* Ell., Millet-fruited Beak Rush, Swamps, Calcasieu.

*Carex hirsuta*, Willd., Hirsute Sedge, Pine Swamps, Calcasieu.

*Carex intumescens*, Rudge., *C. folliculata*, Ell., Inflated Carex, pine swamps, Calcasieu.

*Carex polytrichoides*, Muhl., Hairy Carex, pine swamps, Calcasieu.

GRAMINEÆ—*Grass Family.*

*Aristida oligantha*, Mich., Few-flowered Wire Grass, Grand Ecore Natchidoches.

*Eragrostis megastachya*, Link., Large-spiked Eragrostis, Homer, Claiborne.

*Eragrostis conferta*, Trin., Compact-flowered Eragrostis, Ouachita river, Caldwell parish.

*Eragrostis pilosa*, L., Hairy Eragrostis, Baton Rouge, East Baton Rouge.

*Testuca tenella*, Willd., Slender Fescue grass, Bayou Rapides, Rapides.

*Bromus ciliatus*, L., var., purgans, Gray, Ciliate Brome Grass, Homer, Claiborne.

*Bromus secalinus*, L., Rye-fruited Brome Grass, Baton Rouge, East Baton Rouge.

*Elymus striatus*, Willd., Striated Lyme Grass, Mount Lebanon, Bienville.

*Danthonia spicata*, Beauv., Spike-flowered Danthonia, Opelousas, St. Landry.

*Phalaris intermedia*, Bosc., *P. Americana*, Ell., *P. microstachya*, D. C., Middle-sized Phalaris, Opelousas, St. Landry.

*Phalaris indermedia*, var. *angusta*, Nees., Narrow-leaved Phalaris, Lake Charles, Calcasieu.

*Paspalum distichum* L., Double Spiked Paspalum, Cheneyville, Rapides.

*Paspalum dilatatum* Poia., Broad-spiked Paspalum, Ouachita River, Ouachita.

*Paspalum Carbatum* Shultes., Bearded Paspalum, prairies, St. Landry.

*Paspalum undulatum* Poir., *P. purpuerascens* Ell., *P. plicatum* Mchx., Wavy Paspalum, Ouachita River, Ouachita parish.



*Panicum anceps* L., two-headed Panic-Grass, Mount Lebanon, Bienville.

*Panicum dichatomum*, var. *ciliam* Ell., Ciliate Panic-Grass, Bastrop, Morehouse.

*Panicum labifolium* L., Broad-leaved Panic-Grass, Bushy Creek, Calcasieu.

*Panicum nervosum* Ell., Nerve-leaved Panic-Grass, prairies, Calcasieu.

*Tripsacum dactyloides* L., Gama-Grass, Cherry Ridge, Union.

*Andropogon furcatus* chuhl., Fork-branched Broom-Grass, Ringgold, Bienville.

#### CRYPTOGAMOUS OR FLOWERLESS PLANTS.

##### MUSCI—Mosses.

*Hypnum Ludovicianum*, Aust., Louisiana hypnum, North Louisiana.

*Hypnum serrulatum*, Hedw., serrate-leaved hypnum, Baton Rouge, East Baton Rouge.

*Leskea obscura*, Hedw., obscure leskea, pine flats, Calcasieu.

*Clasmatodon parvulus*, Hampe, small-leaved clasmatodon, Baton Rouge, East Baton Rouge.

*Thelia hirtella*, Sul., rough-leaved thelia, Baton Rouge, East Baton Rouge.

*Atrichum undulatum*, Beauv., wavy-leaved atrichum, Baton Rouge, East Baton Rouge.

*Polytrichum commune*, L., common polytrichum, Farmersville, Union.

*Barbula coespitosa*, Schwaeg., tufted barbula.

*Pogonatum brachyphyllum*, Mich., small-leaved pogonatum.

##### HEPATICE—Liverwort.

*Frulania Drummondii*, H. and W., Drummond's Frulania.

*Frulania æolitis*, Nees, Æolian frulania, Mount Lebanon, Bienville.

*Frulania Caroliniana*, Sul., Carolina Frulania, Mount Lebanon, Bienville.

*Frulania squarrosa*, Ragged-leaved Frulania, Baton Rouge, East Baton Rouge.

*Scapania nemorosa*, Nees var. *Schweinizii*, *Schweiniz's Frulania*, Sparta, Bienville.

*Chiloscyphus polyanthos*, Corda, Many-flowered *Chilosyphus*, pine flats, Calcasieu.

*Phragmicoma xanticarpæ*, Yellow-fruited *Phragmicoma*, Baton Rouge.

*Lejeunia phyllobola*, Lobe-leaved *Lejeunia*, Farmersville, Union.

*Lejeunia calcarea*, Libert., Calcareous *Lejeunia*.

*Lejeunia parvula*, Small-leaved *Lejeunia*, Baton Rouge.

*Lejeunia serpyllifolia*, Libert., Thyme-leaved *Lejeunia*.

*Jungermannia catenulata*, Heal., Chain-leaved *Jungermannia*.

*Plagiochila undata*, Sul., Wave-leaved *Plagiochila*.

*Calypogeia*, *Trichoman's* Corda, *Trichoman's* *Calypogeia*.

*Madotheca platyphylla*, Dum., Broad-leaved *Madotheca*.

*Reboulia hemisphaerica*, Raddi, Hemispherical *Reboulia*, Baton Rouge.

*Riccia lutescens*, Schw., Muddy *Riccia*, Baton Rouge.

*Aneura palmata*, Nees, Palmate *Aneura*.

#### LICHENES—*Lichens*.

*Collema pulchella*, Ach., Beautiful *Collema*, Nez Pique, Calcasieu.

*Cladonia pyxidata*, Box-fruited *Cladonia*.

*Sticta crocata*, Yellow *Sticta*.

#### FUNGI—*Mushroom Family*.

*Agaricus salignus* P., Willow Mushroom, Baton Rouge, East Baton Rouge.

*Agaricus corticola* P., Bark-like Mushroom, Baton Rouge, East Baton Rouge.

*Agaricus penetrans* Fr., Penetrating Mushroom, Baton Rouge, East Baton Rouge.

*Agaricus crocosporus* Berk. and Curt., Yellow-spored Mushroom, Baton Rouge, East Baton Rouge.

*Agaricus Curtisii* Berk., Curtis' Mushroom, Baton Rouge, East Baton Rouge.

*Russula abutacens* Fr., Leathery-*Russula*, pine flats, Calcasieu.

*Lactarius* (?), Pine flats, Calcasieu.

*Cantharellus* (?), Sparta, Bienville.

*Lentinus tigrinus* Fr., Tiger-spotted *Lentinus*, Baton Rouge, East Baton Rouge.

*Lentinus* (?), Pine flats, Calcasieu.

*Lenzites strata* Fr., Prostrate *Lenzites*, Mount Lebanon, Bienville.

*Lenzites* n. sp. (?), North Louisiana

*Boletus retipes*, Berk. and Curt., Netted-stiped *Boletus*, Mount Lebanon, Bienville.

*Boletus Ananas*, Curtis, Anana *Boletus*, Minden Webster.

*Polyporus serapopus* Fr., Baton Rouge, East Baton Rouge.

*Polyporus versicolor* Fr., Various-colored *Polyporus*, Baton Rouge, East Baton Rouge.

*Polyporus fociola*, Home-grown *Polyporus*, Pine-flats, Calcasieu.

*Polyporus Curtisii* Berkl., Curtis' *Polyporus*, Nez Pique, Calcasieu.

*Polyporus hirsutus* Fr., Hirsute *Polyporus*, Pine-flats, Calcasieu.

*Polyporus adustus* Fr., Burnt *Polyporus*, Pine-flats, Calcasieu.

*Polyporus brumalis* Fr., Winter *Polyporus*, Sparta, Bienville.

*Polyporus beissulcis* Fr., Minden, Webster.

*Polyporus igniarius* Fr., Fire-producing *Polyporus*, Home, Claiborne.

*Polyporus Schweintzii* Berk., Schweiniz's *Polyporus*, Farmersville, Union.

*Polyporus Feathermani* Rav. n. sp., Featherman's *Polyporus*, North Louisiana.

*Daedalia glaberrima* Berk. and Curt. Smooth *Daedalia*, Minden, Webster.

*Hydnum Rhodis* Schw., Rhodis' *Hydnum*, Baton Rouge, East Baton Rouge.

*Hydnum* (?), Nez Pique, Calcasieu.

*Telephara terrestris* Ehrh., Terrestrial *Telephora*, Sparta, Bienville.

*Stereum striatum* Fr., Striate *Stereum*, Baton Rouge, East Baton Rouge.

*Stereum spadiceum* Fr., Nut-brown *Stereum*, Baton Rouge, East Baton Rouge.

*Stereum fasciatum* Schw., Crowded *Stereum*, pine-flats, Calcasieu.

*Stereum achroceo-flavum* Schw., Pale yellow *Stereum*, Baton Rouge, East Baton Rouge.

*Stereum frustulosum*, Fr., Crumb-like *Stereum*, Farmersville, Union.



*Stereum lobatum* Fr., Lobed Stereum, Baton Rouge, East Baton Rouge.

*Stereum bicolor* Berk., Two-colored Stereum, Baton Rouge, East Baton Rouge.

*Corticium scutellatum* Berk. & Curt., Shield-like Corticium, Minden, Webster.

*Guepinia spathularia*, Fr., Sparta, Beinville.

*Clavaria acuta* Fr., Acute Clavaria, pine-flats, Calcasieu.

*Clavaria* (?), Sparta, Bienville.

*Lycoperdon pyriforme* P., Pear-shaped Puff-ball, Baton Rouge, East Baton Rouge.

*Lycoperdon cyathiforme*, Cup-shaped Puff-ball, Pine-flats, Calcasieu.

*Lycoperdon giganteum*, Gigantic Puff-ball, Farmersville, Union.

*Lycoperdon gemmatum* Fr., Budded Puff-ball, Pine-flats, Calcasieu.

*Schleroderma geaster* Fr., Earth-growing Schlerodorma, Baton Rouge, East Baton Rouge.

*Lycogala epidendrum* L., Tree-growing Lycogala, Sparta, Bienville.

*Stemonites fusca* Roth., Dark-colored Steminites, Farmersville, Union.

*Cyathus campanulatus* Fr., Bell-shaped Cyathus, Sparta, Bienville.

*Geaster hygrometricus* Pers., Hygrometrical Geaster, Sparta, Bienville.

*Diplodia Buxi* Fr., Box-leaf Diplodia, Baton Rouge, East Baton Rouge.

*Asteroma Rosæ* Libert., Rose-leaf Asteroma, Baton Rouge, East Baton Rouge.

*Uredo phaseoli*, D. C., bean-leaf uredo, Baton Rouge, East Baton Rouge.

*Uredo elaphantopodis*, Schweinz., elephant's-foot-leaf uredo, Minden, Webster.

*Uredo solidaginis*, D. C., golden-rod-leaf uredo, Baton Rouge, East Baton Rouge.

*Uredo polygoneum*, D. C., knot-grass-leaf uredo, Baton Rouge, East Baton Rouge.

*Uredo prunastri*, D. C., peach-leaf uredo, Baton Rouge, East Baton Rouge.

*Atractium flammeum*, Burt. and Rav., red *atractium*, Baton Rouge, East Baton Rouge.

*Epicoccum sphacrospermum*, Bert. and Cart., crane-leaf *epicoccum*, Baton Rouge, East Baton Rouge.

*Glenospora Curtisu*, B. and Desn., Curtis' *glenospora*, Baton Rouge, East Baton Rouge.

*Rhinotrichum Curtisu*, Bert., Curtis' *rhinotrichum*, Baton Rouge, East Baton Rouge.

*Peziza diversicolor*, Fr. various-colored *peziza*, Baton Rouge, East Baton Rouge.

*Propolis hysterina*, Fr., late-growing *propolis*, Baton Rouge, East Baton Rouge.

*Hysterium pinastri*, Schrad., pine-leaf *hysterium*, Farmersville, Union.

*Hypoxyton annulatum*, Schw., articulate *hypoxyton*, Baton Rouge, East Baton Rouge.

*Hypoxyton illitum*, Schw., bedaubed *hypoxyton*, Baton Rouge, East Baton Rouge.

*Hypoxyton concentricum*, Bolt., concentric *hypoxyton*, Baton Rouge, East Baton Rouge.

*Diatrype atro-punctata*, Schw., black-dotted *diatrype*, Baton Rouge, East Baton Rouge.

*Sphaeria pilifera*, Fr., pill-bearing *sphaeria*, Baton Rouge, East Baton Rouge.

*Sphaeria myriadea*? D. C., myriad *sphaeria*, Farmersville, Union.

*Meliola amphitricha*, Fr., hairy *meliola*, Grand Coteau, St. Landry.

*Strigula Feei*, Mont., Fees' *strigula*, Baton Rouge, East Baton Rouge.

*Hygrophorus cinnabarinus*, Fr., cinnabar-colored *hygrophorus*, Baton Rouge, East Baton Rouge.

*Peronospora pusilla*, DeBurg, small *peronospora*, Baton Rouge, East Baton Rouge.

*Dematium muscorum*, Link., moss *dematium*, Baton Rouge, East Baton Rouge.

#### ALGÆ—SEAWEED TRIBE.

##### CISTIPHORÆ.

*Scytonema minutum*, Ag., Baton Rouge, East Baton Rouge.

## DESMIDEE.

- Desmidium Schwarzi Ralf., Baton Rouge, East Baton Rouge.  
 Cosmarium pyramidatum, Breb., Baton Rouge, East Baton Rouge.  
 Cosmarium Batrytis, Borg., Baton Rouge, East Baton Rouge.  
 Closterium Ehrenbergii, Mengh., Baton Rouge, East Baton Rouge.  
 Docidium minutum, Ralfs., Baton Rouge, East Baton Rouge.  
 Penium digitus, Breb., Baton Rouge, East Baton Rouge.  
 Xantidium Brebinsonii, Ralfs., Baton Rouge, East Baton Rouge.

## SIPHOPHYCEE.

- Vaucheria caespitosa, Ag., Baton Rouge, East Baton Rouge.

## NEMATOPHYCEE.

- Ulothrix nucosa, Thur., Baton Rouge, East Baton Rouge.

## MELANOSPERME.

- Delesseria Seprieurii, Mont., Grand Isle, Jefferson.

## RHODOSPERME.

- Polysephonia Olnei, Har., Grand Isle, Jefferson.

## DIATOMACEE.

## SWURELLEE.

- Synedra fulgens, Grev., Sea weed, Grand Isle.

## STRIATELLEE.

- Rhabdonema Adriaticum, K., in Sea weed, Grand Isle.  
 Grammatophora marina, Lyngb., in Sea weed, Grand Isle.

## BIDULPHIEE.

- Bidulphia pulchetta, Gray, in Sea weed, Grand Isle.

## COCONEIDEE.

- Cocconeis scutellum, E., in Sea weed, Grand Isle.  
 Cocconeis Placentula, E., in Sea weed, Grand Isle.

## ACHNANTHEE.

- Achnanthes ventricosa, E., in Sea weed, Grand Isle.  
 Achnantidium microcephalum, K., Baton Rouge, East Baton Rouge.



*Infusoria.*

*Notomurata aurita*, Pr.  
*Hydatina senta*, Pr.  
*Polychaetus subquadratus*, Pr.  
*Astasia contorta*, Pr.  
*Arcella oulgaris*, Pr.  
*Euglena longicaulis*, Pr.  
*Epistilis nutans*, Pr.  
*Dinocharis pocillum*, Pr.

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## SHELLS COLLECTED IN LOUISIANA.

*Arca Noae* L., Ballast heap, New Orleans.  
*Cerithium nigrescens*, Grand Isle, Jefferson.  
*Columbella efuscata*, Sly., Ballast heap, New Orleans.  
*Pupa rupicola*; Baton Rouge, East Baton Rouge.  
*Pupa fallax*, Baton Rouge, East Baton Rouge.  
*Anadonta virens*, Lea, Lake Pearl, Avoyelles.  
*Unio trapezoides*, Lea, Lake Pearl and Lake Concordia, Avoyelles.  
*Unio nodulatus*, Conr., Lake Charles, Calcasieu.  
*Unio apiculatus*, Lea, Teche, St. Mary.  
*Unio pustulatus*, Lea., Lake Pearl, Avoyelles.  
*Unio asper*, Lea, Teche, St. Mary.  
*Unio plicatus*, Lea, Lake Pearl, Avoyelles.  
*Unio calliginosus*? Falls Red river, Rapides.  
*Unio cornutus*, Bayou Cocodrie.  
*Unio anatondoides*, Lea, Lake Pearl, Avoyelles.  
*Unio perplicatus*, Conr., Lake Pearl, Avoyelles.  
*Unio glebulus*, Say, Teche, St. Mary.  
*Unio purpuratus*, Lam., Lake Pearl, Avoyelles.  
*Unio parvus*, Barnes, Nez Pique, Calcasieu.  
*Unio Heydianus*, Lea, Lake Pearl, Avoyelles.  
 All of which is respectfully submitted.

A. FEATHERMAN,

Lecturer on Botany and Professor Louisiana State University.

Respectfully forwarded to the Honorable Board of Supervisors.

D. F. BOYD,

Superintendent.

