

MISSISSIPPI STATE GEOLOGICAL SURVEY

WILLIAM CLIFFORD MORSE, PH. D.
Director



BULLETIN 32

TISHOMINGO STATE PARK

B O T A N Y

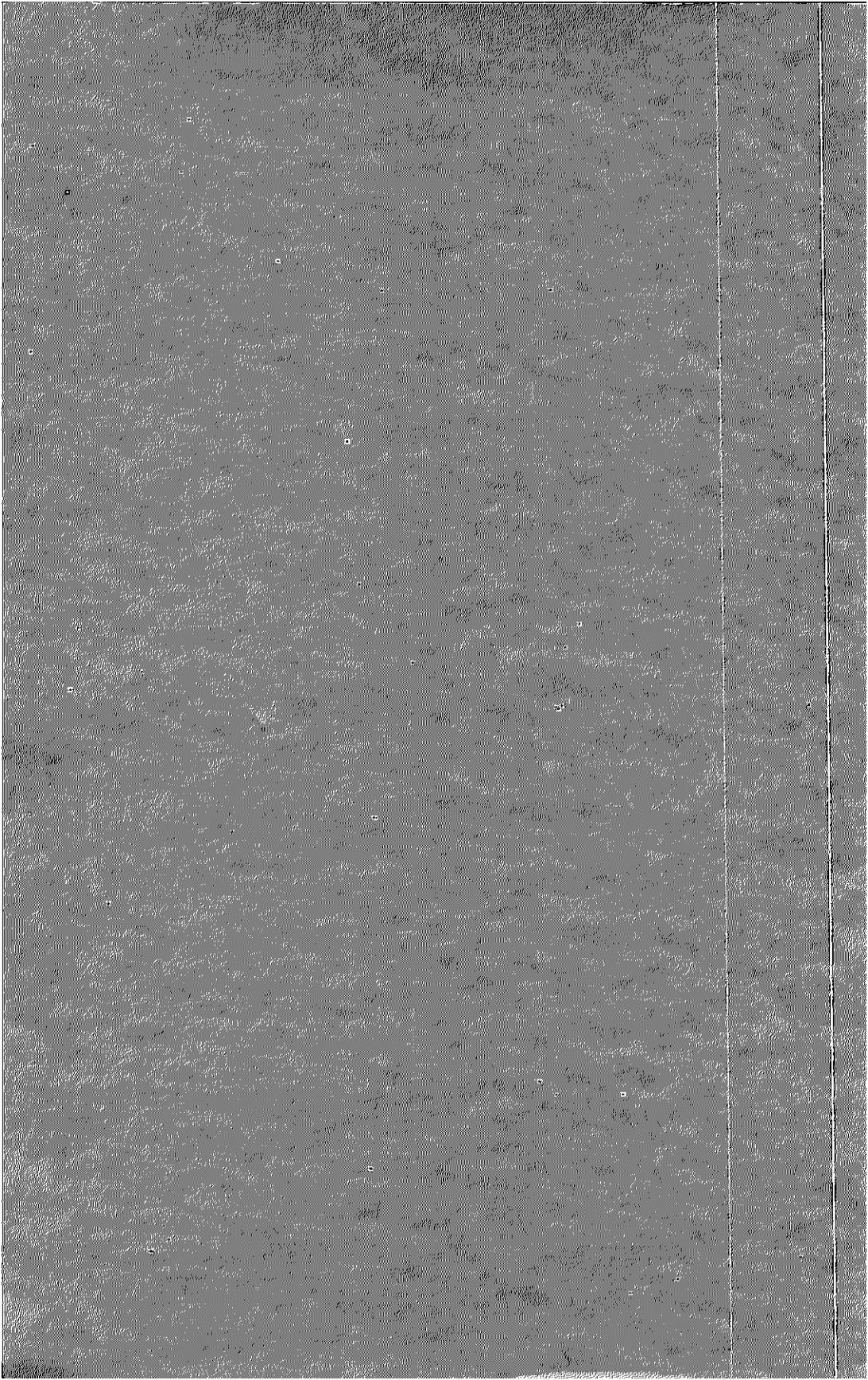
SECOND, ENLARGED, EDITION

by

CALVIN S. BROWN, D. Sc., Ph. D.

UNIVERSITY, MISSISSIPPI

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The original bulletin contains a part on Historical Geology.

MISSISSIPPI GEOLOGICAL SURVEY

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TISHOMINGO STATE PARK

BOTANY

CALVIN S. BROWN, D. SC., PH. D.

INTRODUCTION AND ACKNOWLEDGMENTS

FIRST EDITION, 1936

In the spring of 1936 Dr. William C. Morse, State Geologist, requested me to write a brief account of the botany of the new Tishomingo State Park in the north-eastern part of Mississippi. The paper here presented is the result of brief studies in the park early in June and early in September. The list of plants is by no means complete, but it is hoped that it may serve as a working basis for the study of the more conspicuous plants of the park. With each plant has been given a few of its more obvious characteristics, but no effort has been made to give a complete botanical description.

I have derived assistance from Mohr's Plant Life of Alabama, 1901, Lowe's Plants of Mississippi, 1921, Gattinger's Tennessee Flora, 1887, and from the works of Chapman, Small, Britton and Brown, Gray, and others, and from the Geological Survey herbarium.

My thanks are due to Mr. A. L. Cassell and Mr. W. M. Carter for valuable assistance in the park. The officers of the camp, both military and civil, were uniformly obliging.

The flora of this park is an undisturbed flora and is characteristic of the extreme north-eastern part of the state. It is to be kept in its primitive purity, so that students of nature may always find here a typical group; no plants from the outside, either wild or cultivated, are to be brought into the park. The flora is sufficiently rich and beautiful for all decorative and landscape purposes.

SECOND, ENLARGED, EDITION, 1945

Since the first edition of this study of the Botany of Tishomingo State Park was published in 1936, I have made several brief trips to the park, and am now able to add about 110 species of plants to the earlier list.

Since it is impractical to make illustrations for the book, I am adding references for illustrations to such well-known wild-flower books as that of House and the Geographic Society's book, and occasionally to other books:

- House, Wild Flowers, Macmillan Co., 1935.
Nat. Geographic Society, Book of Wild Flowers, 1933.
Dormon, Wild Flowers of Louisiana, 1934.
Audubon, Birds of America, Macmillan Co., 1941.
Hylander, World of Plant Life, Macmillan Co., 1939.
Mathews, Familiar Trees and Their Leaves, 1903.
Batson, Mississippi Native Shrubs, 1942.
Harper, Weeds of Alabama, 1944.

For botanical purposes the leaf-drawings in Mathews' book are more valuable than the tree-paintings. Britton & Brown's masterly three-volume work (1896-1898) gives a line-drawing for every plant, and hence references to this book are not usually given.

My hearty thanks are extended to Mr. and Mrs. C. V. Gross, recent managers of the park.

Through the courtesy of the Smithsonian Institution Mr. C. V. Morton was designated to make some determinations of species for me, and I hereby express my gratitude to him for his kindness.

PLANTS OF THE PARK, WITH BRIEF DESCRIPTIONS

POLYPODIACEAE. FERN FAMILY

Polypodium vulgare. Common Polypody.

Rootstocks slender and creeping; fronds evergreen, 4 to 10 inches long, sterile and fertile fronds alike; fruit-dots large. Rocky woods in shady places.

Polypodium polypodioides, *Polypodium incanum* (Swartz, 1806).
Gray or Hoary Polypody.

Rootstocks slender and creeping; fronds evergreen, lanceolate, 3 to 8 inches high; sterile and fertile fronds alike; smaller than the common polypody; fruit-dots small. On trees and rocks.

Asplenium filix-foemina, *Polypodium filix-foemina* (Linnaeus, 1853).
Lady Fern.

Slender creeping rootstocks; fronds broad, pointed, 1 to 3 feet long; fruit-dots short. Moist woods and thickets.

Cystopteris fragilis, *Polypodium fragile* (Linnaeus, 1753). Brittle Fern, Bladder Fern.

Rootstocks short; fronds thin and brittle, doubly or irregularly pinnatifid or cut-toothed, oblong-lanceolate, 4 to 9 inches long; sori naked at maturity.

Onoclea sensibilis. Sensitive Fern.

General outline triangular or deltoid; sterile fronds 1 to 4 feet long, taller than fertile fronds 1 to 3 feet, deeply pinnatifid; in shaded swamps and moist places.

Woodwardia areolata, *Woodwardia angustifolia* (Smith, 1793). Chain Fern, Net-Veined Chain Fern.

Fronds 6 inches to 2 feet high, beautifully veined, pinnae smooth or undulate, their bases connected by wings. Shaded, moist soil.

Pellaea atropurpurea. Cliff Brake.

Small fern, not more than 2 to 10 inches high, short rootstock, with purple or dark-brown stem; spores along the margin. Growing along the rock cliffs.

Adiantum pedatum. Maiden-Hair Fern.

Dark brown stem divided into two parts, then sub-divided, smooth, 1 to 2 feet high; the whole giving a fan-shaped or semicircular form when pressed. Very graceful. Growing in moist rich shady soil.

There is a different maiden-hair fern, *Adiantum capillus-ven-eris*, growing in moist limey soil further south in the state.

Pteris aquilina. Common Brake, Bracken.

Divided into three branches; rigid, 1 to 3 feet high; bipinnate. Widely distributed in various soils above the sandstone.

Osmunda regalis. Royal Fern.

Fronds bipinnate, fertile at top on under side, 1 to 5 feet high; pinnae broadly lanceolate, very handsome. Low ground and swamps.

Osmunda cinnamomea. Cinnamon Fern.

Fronds 1 to 4 feet high; pinnae sessile, lanceolate; cinnamon-colored sporangia on separate frond. Damp fertile soil, in coves of the sandstone.

Dryopteris acrostichoides, *Aspidium acrostichoides* (Swartz, 1806). Christmas Fern.

Fronds rigid, evergreen, from 1 to 2 feet high, bearing spores on the upper third on contracted pinnae; pinnae having triangular projection at the base above (auriculate). Damp to dry shady land.

Camptosorus rhizophyllus. Walking-leaf, Walking-leaf Fern.

An unusual type of fern, with long narrow fronds, heart-shaped at base and prolonged into a very narrow midrib, taking root and forming a new plant at a distance of 10 to 15 inches; sori scattered on the lower side of the arrow-shaped part of the frond. Rare.

PINACEAE. PINE FAMILY

Pinus taeda. Old Field Pine, Loblolly Pine.

Tall forest tree, lower and more spreading in old fields; bark thick; leaves olive green, in threes, 6 to 10 inches long; cones solitary, 3 to 5 inches long. Valuable timber tree.

Pinus echinata, *Pinus mitis* (Michaux, 1803). Short-leaf Pine, Yellow Pine.

An evergreen tree 80-100 feet high; leaves 3 to 5 inches long, in twos (sometimes in threes); cones dark green, very small; timber valuable.

Pinus virginiana, *Pinus inops* (Aiton, 1789). Scrub Pine, Jersey Pine.

A slender tree; leaves dark green or yellow green, in twos, 1 to 3 inches long; cones 2 inches long, with prickles at end of scales; wood soft and brittle.

Taxodium distichum, *Cupressus disticha* (Linnaeus, 1753). Cypress, Bald Cypress.

Large tall tree, expanding at the base, and sending up conical knees several feet high; leaves long and slender, more or less evergreen; cones nearly globular, about 1 inch in diameter. Low swampy ground along Bear Creek.

Juniperus virginiana. Red Cedar.

An evergreen tree reaching large size; wood soft, straight-grained, durable, red, odorous, useful; leaves scale-like, imbricated; fruit small, globular, blue. Very abundant.

Chamaecyparis thyoides, *Cupressus thyoides* (Linnaeus, 1753). White Cedar.

Evergreen forest tree, of medium size; bark light reddish brown; wood soft, light, close-grained, durable, not so fragrant and red as that of red cedar; leaves imbricated; fruit 1/4 inch in diameter, more angular than that of red cedar, light-green changing to blue and brown; seeds winged.

COMMELINACEAE. SPIDERWORT FAMILY

Commelina nudiflora, *Commelina communis* (Walt, 1788). Dayflower.

Stem low and creeping, jointed; leaves parallel-veined, broader at base, pointed at outer end; flowers 3-parted, blue, sometimes irregular or unequal. Imported from Asia and sometimes called "Wandering Jew." House pl. VI B., Br. & Br. fig. 905.

Related to *Tradescantia* or Spiderwort.

Commelina virginica (Virginia). Day-Flower.

Stem branching, 1 to 2 feet high; leaves oblong, lanceolate, pointed; flowers blue, 3-parted, the third petal often inconspicuous or missing, July, August; good specimen on the drive in front of the lodge. Br. & Br. fig. 909.

See *Commelina communis*, House pl. VI. B, Geog. p. 220.

Tradescantia virginiana. Spiderwort.

Green, jointed stem, 1 to 3 feet high; leaves linear-lanceolate, broadest at base, keeled, generally channelled, very pointed, 1 foot long, flowers many, showy, blue or purplish, blooming early in the morning. Fairly abundant in spring. House pl. VII., Geog. p. 223.

Tradescantia pilosa. Tradescantia, Spiderwort.

Stem 1 to 2 feet high; leaves long, lanceolate, pubescent, narrowing at the base; flowers three-parted, small, blue, May and later. In rich mold.

TYPHACEAE

Typha latifolia. Cat-tail.

Stem rising from root stocks stout, round, 4 to 8 feet high; leaves long, flat; sheathing; staminate flowers on uppermost part of stem; dark pistillate flowers below; in stagnant shallow water, June and July. House fig 1; Geog. p. 86, Hylander p. 597.

ALISMACEAE

Sagittaria latifolia, *Sagittaria variabilis* (Engelm, 1848). Arrow-head.

Aquatic or swamp herb, 2 to 3 feet high; leaf broad, arrow-shaped, or variable, stout; flowers 3-parted, white, in summer. In the edge of water. House pl. I., Geog. p. 213.

LILIACEAE. LILY FAMILY

Ornithogalum umbellatum. Star of Bethlehem.

Scape slender, 4 to 8 inches high, from coated bulb; leaves linear, from bulb; flowers white, in terminal corymb in May and June; seeds black; in open ground; introduced from Europe.

Yucca filamentosa. Bear Grass. Adam's Needle, Yucca.

Stalk or scape 3 to 8 feet high; leaves lanceolate, flat, sharp-pointed, bearing filament on the edges, 1 to 2 feet long; flowers white or slightly cream-colored, numerous, in a large cluster, June.

Allium mutabile. Wild Onion.

One to two feet tall, growing from ovoid bulbs, strong onion-scented; leaves grass-like, basal, somewhat wider than in *Allium canadense* and channelled or concave; flowers pink, rose, or white, April to June. In moist earth, frequent.

Allium canadense. Wild Garlic.

Eight to eighteen inches tall, growing from bulbs, strong-scented; leaves long and narrow; flowers pink, often replaced by bulblets, April to June, Br. & Br. 997. In damp soil.

Allium striatum, (Jacq. 1796) *Nothoscordum bivalve* (Knuth 1843).
False Garlic.

A plant resembling the two herbs of the onion and garlic tribe above but minus the characteristic odor; bulb globose, membranous, small; scape one foot high; leaves basal, long, linear; flowers perfect, yellow or greenish, small, few, March to May; ovary and capsule 3-celled; seeds black, angled. In open woods.

The three preceding plants belong to the onion family, the first and second sometimes becoming pests in pastures and lawns. Illustration of the three may be seen in Britton and Brown figs. 997, 998 and 1001.

Medeola virginiana. Indian Cucumber.

One vertical unbranched stem, 1 to 2 feet high, growing from a rootstock; leaves of flowering plants growing in two whorls, parallel ribbed, ovate, lanceolate, varying in number to the whorl; flower at apex, greenish yellow, June; berry dark with few seeds, purple, globose. In moist woods and swamps. House pl. 22, Br. & Br. fig. 1042.

Trillium sessile. Wake Robin.

A striking plant, 12 to 18 inches high, with three broad, sessile ovate leaves, sometimes mottled; flowers sessile, at apex. March and April. Not common in the park. (Several others in the state.)

Uvularia perfoliata. Bellwort, Perfoliate Bellwort.

Slender stem forked above the middle, 6 to 18 inches high; leaves perfoliate, parallel-veined, oblong-lanceolate, smooth-margined, 2 to 2 1/2 inches long, 1 to 3 below the fork; flowers solitary, yellow, 1 to 1 1/2 inches long, bell-shaped.

Uvularia sessilifolia. Bellwort, Sessile-Leaved Bellwort, Oakes's Bellwort.

Slender stem, forked above the middle, 6 to 14 inches high; leaves sessile, parallel-veined, oblong-lanceolate, acute at both ends, 1 1/2 to 2 1/2 inches long, 1 to 2 below the fork; flowers solitary, greenish-yellow or cream-colored, 1/2 to 1 inch long, bell-shaped. House, pl. 20A.

Smilacina racemosa, *Vagnera racemosa* (Morong, 1894). False Solomon's Seal, Wild Spikenard.

Stem 1 to 2 feet high; leaves 6 inches long, sharply pointed; flowers alternate, in a terminal raceme, May and June; followed by red berries borne on the stem. Name a diminutive of *smilax*.

Polygonatum commutatum, *Polygonatum giganteum* (Dietrich, 1835). Large or Smooth Solomon's Seal.

Stem 3 to 6 feet high, smooth; leaves ovate; flowers and fruit hanging beneath the curving stem.

The false Solomon's seal may be told at once by the fact that its flowers and fruit are at the top of the stem while in the true Solomon's seal they are scattered at intervals beneath the curving stem.

Polygonatum biflorum, *Convallaria biflora* (Walter, 1788). Small or Hairy Solomon's Seal.

Stem 1 to 2 feet high; leaves 3 to 4 inches long, sessile; flowers and fruit hanging beneath the curving stem.

Chamaelirium carolinianum, *Chamaelirium luteum* (Wild, 1808), *Veratrum luteum* (L. 1753). Blazing-star, Devil's-bit.

Herb from bitter rootstock; stem 1 to 2 1/2 feet high, simple; leaves thin lanceolate at base, shorter towards the top; flowers small white in vertical spiked raceme, early summer, seeds many, oblong, on bare vertical stalk. In open ground.

ARACEAE. ARUM FAMILY

Arisaema triphyllum, *Arum triphyllum* (L. 1753). Indian Turnip, Jack-in-the-Pulpit.

Herb low, perennial, green, with pungent juice, from root-stock; spathe striped and curving over spadix to make "pulpit"; fruit a scarlet berry. In damp rich woods; April to June; House, pl. 3, Dorman, pl. II 2, Geog. p. 150, Hylander, p. 533.

Arisaema dracontium, *Arum dracontium* (L. 1753). Green Dragon, Dragon Root.

Leaf divided into 7 or more pointed leaflets arranged in semi-circular outline; May and June; fruit reddish-orange berry. In low rich ground; House, fig. 2, p. 40.

Orontium aquaticum. Golden Club.

Perennial aquatic herb 1 to 2 feet high, springing from root-stock; leaves 1 foot long, petioled, ovate, acute, dull green, parallel-veined; flower bright yellow, terminating the scape, March and April. In slowly-flowing streams and in ponds. Br. & Br. fig. 882.

XYRIDACEAE. YELLOW-EYED GRASS FAMILY

Xyris sp.? Yellow-eyed grass.

A low grass-like plant; leaves linear; flower bright yellow, 3-parted, all summer; seeds numerous. In swampy places. Lowe gives 12 species for Mississippi, Mohr 11 for Alabama. House, pl. 2 B.

Not a true grass.

See ill. of *Xyris caroliniana* in Hylander, p. 634.

IRIDACEAE. IRIS FAMILY

Sisyrinchium sp.? Blue-Eyed Grass.

Slender herb with short rootstock; grass-like leaves, 6 to 15 inches high; flower small, blue, 6-parted, in spring and summer. House, pl. 284.

Many species in America. Not a grass at all, but a member of the Iris family.

Iris cristata. Crested Iris.

Stem 1 to 3 inches high; leaves lanceolate, 3 to 5 inches long; flowers blue, fragrant; April-May; capsule sharply triangular.

SMILACEAE. SMILAX FAMILY

Smilax ecirrhata. Upright Smilax.

Stem simple, erect; leaves ovate, cordate, or varying in form, often whorled, on long wiry stems; small berries.

Smilax bona-nox, *Smilax hastata* (Willdenow, 1806). Bamboo Briar, Bristly Greenbriar.

Running stem, sometimes angled, prickles; leaves deltoid-hastate, fiddle-shaped; three or more inches long; numerous berries. Common.

Smilax rotundifolia, *Smilax quadrangularis* (Willdenow, 1806). Greenbriar, Low Bamboo.

Stems climbing; leaves ovate or nearly round, yellowish green, 2 to 4 inches long; berry three-seeded. Low valley ground.

The various smilaxes are often called greenbriars or bamboos. There are probably other species in the park in addition to those listed here.

AMARYLLIDACEAE. AMARYLLIS FAMILY

Agave virginica. American Aloe.

A cluster of narrow oblong denticulate leaves 6 to 15 inches long; stem rising to 5 or more feet and bearing small yellowish flowers in July; later seed pods. Dry upland sandy soil.

DIOSCOREACEAE. YAM FAMILY

Dioscorea villosa. Wild Yam.

A handsome vine running to the length of 11 or 15 feet over bushes; leaves heart-shaped, entire, strongly ribbed, alternate, opposite or in fours, showing beautiful colors in the fall; flowers greenish yellow, June and July; seed in three-winged capsule, ripe in September. In moist thickets.

ORCHIDACEAE. ORCHID FAMILY

Spiranthes gracilis, *Gyrostachys gracilis* (Kuntze, 1891). Ladies' Tresses.

Stem slender, erect, 8 to 16 inches high; leaves basal, ovate, or oblong, disappearing early; flowers white, in a 2 to 3-inch spiral at top of stem.

Habenaria ciliaris, *Orchis ciliaris* (L. 1753). Yellow-Fringed Orchid.

Stem slender, 1 to 3 feet tall; leaves lanceolate, pointed, smaller toward the top; flowers showy, orange or yellow, fringed, in a terminal spike, 2 to 3 inches long, with long spur. In sandy valley of Bear Creek, east. House, pl. 37, Geog. p. 183 (under the name *Blephariglottis ciliaris*), Dormon, pl. IX 2.

SAURURACEAE. LIZARD'S-TAIL FAMILY

Saururus cernuus. Lizard's-Tail.

Stem erect, jointed, 1 to 2 feet high, branching; leaves heart-shaped, acuminate; flowers May to July, white, terminal, nodding, in a tail-like spike (whence the name). In wet places near Bear Creek. House, pl. 44.

JUGLANDACEAE. WALNUT FAMILY

Juglans nigra. Walnut, Black Walnut.

Large well-known valuable tree; alternate pinnate leaves with characteristic odor; flower in spring; fruit in autumn, nut rough and furrowed, edible, oily. Not common in the park.

The generic name *Juglans* is from the Latin *Jovis glans*, Jupiter's nut.

Hicoria ovata, *Carya alba* (Nuttall, 1818). Scaly-Bark Hickory, Shag-Bark Hickory, Shell-Bark Hickory.

A tall slender tree reaching 120 feet in height; the bark shaggy, separating into strips; leaves compound with 5 (7) long pointed leaflets; the upper three much larger than the lower; nut white, slightly flattened, delicious. Valuable for timber, fuel, for food, and for shade. Valley land along the creek.

Hicoria glabra, Carya porcina (Nuttall, 1818). Pignut Hickory.

A tall tree; bark close, rough; leaves divided into 5 to 7 pointed leaflets; nut small and worthless.

Hicoria alba, Carya tomentosa (Nuttall, 1818). Hickory, Mocker-nut Hickory.

A tall forest tree; bark close and rough; leaves 7 to 9 parted, outer leaflets often larger and fragrant when crushed; nut thick-shelled, edible, but not choice.

There may be other species of hickory in the park.

SALICACEAE. WILLOW FAMILY

Salix nigra. Willow, Black Willow.

A small tree with soft weak wood; narrow leaves, 3 to 5 inches long; odorous catkins in spring; reproducing readily from twigs and branches. Sparse along the creek.

Populus heterophylla. Poplar, Cottonwood.

Tree 40 to 90 feet high; leaves ovate or rounded, slightly cordate at base, serrate, 3 to 5 inches long, long-petioled; flowers in spring; timber valuable, soft and light. In low land.

BETULACEAE. BIRCH FAMILY

Corylus americana. Hazelnut, American Hazelnut.

A shrub, 4-9 feet tall; leaves ovate or oval, pointed, 3-5 inches long; small brown edible nut, in prickly bur, ripe in August; much smaller than the English hazelnut (*Corylus avellana*) found in the market.

Betula nigra, Betula rubra (Michaux, 1812). Birch, Red Birch, River Birch.

A medium-sized tree, with outer bark often peeling in papery sheets; twigs reddish; leaves simple, rhombic-ovate, acute, serrate; sterile aments or catkins 2-3 inches long and drooping; fertile aments oblong, yellowish, 1-2 inches long; fruit cone-shaped, 1 inch long. Along Bear Creek.

Alnus rugosa, *Alnus serrulata* (Willdenow, 1805). Alder.

Shrub 5-16 feet high, smooth; leaves obovate or oval, serrulate, green on both sides, 1-3 inches long; flowers in February; aments; nut angled or winged. Along the creek.

Carpinus caroliniana, *Carpinus americana* (Michaux, 1803). Ironwood

Small tree with vertically furrowed or fluted trunk, close gray bark; wood very hard; leaves ovate, oblong, pointed (resembling those of the beech); catkins in spring; fruit 2 inches long. Rich woods along the creek.

Ostrya virginiana, *Ostrya americana* (Michaux, 1803). Hornbeam,
Hop Hornbeam.

Small tree, with finely furrowed bark and hard, close-grained wood; leaves oblong, pointed, serrate; the mature ament hop-like. Rich low woods.

The English names of these two trees are sometimes confused. The trees may be distinguished readily by the trunks, as indicated above.

FAGACEAE. BEECH FAMILY

Fagus americana, *Fagus ferruginea* (Aiton, 1789). Beech.

A very handsome forest tree reaching a height of 100 feet, with smooth light gray bark; branches ending in very slender twigs; leaves delicate, parallel-veined, serrate, pointed; three-cornered edible nut inclosed in a small bur. Found along the lower levels beneath the sandstone.

Castanea dentata. Chestnut.

A rapid-growing nut-tree, with elongated narrow deeply serrate leaves; the nuts inclosed in a very spiny bur, very delicious when fresh, valuable both for timber and nuts. Rare in the park.

Castanea pumila. Chinquapin.

A species of small chestnut, 10 to 30 feet high; leaves similar to that of chestnut, but smaller; long catkins; single round small edible nut in bur. Near pumping station.

Quercus rubra. Red Oak.

Large tree with dark grey rather smooth bark; coarse reddish wood, hard and strong; long deeply cut leaves, 4 to 8 inches; acorn ovoid, about 1 inch long, ripe in October or November. Sandstone bluffs.

Quercus alba. White Oak.

Large forest tree with whitish or gray bark; leaves with 3 to 9 deep oblong obtuse lobes, 4 to 6 inches long; acorn 1 inch long with shallow rough cup, ripe in September and October; very valuable.

Quercus nigra, *Quercus aquatica* (Walter, 1788). Water Oak.

Medium-sized tree; leaves narrow, sometimes 3-lobed at outer broader end, thus differing from the willow-like unlobed leaf of the willow oak (*Quercus phellos*); acorn small. Creek valley.

Quercus phellos. Willow Oak.

Medium-sized tree; reddish-brown bark; leaves very narrow and pointed at both ends; small acorns. Along the valley.

Quercus prinus. Chestnut Oak, Rock Chestnut Oak.

A large valuable tree, reaching 100 feet in height; leaves resembling those of the chestnut; apparently several varieties or even species. Sandstone bluffs of Bear Creek.

Quercus cinerea. Upland Willow Oak.

Shrub or small tree; narrow downy leaf, 2-3 inches long; cup shallow with small acorn. (Similar to *Quercus virginiana*.) In the valley along Bear Creek.

Quercus minor, *Quercus stellata* (Wangenheim, 1787). Post Oak.

Tree with rough gray bark; leaves broadly obovate but deeply pinnatifid with 3 to 7 deeply-toothed lobes, 4 to 5 inches long; acorn oval or ovoid.

Quercus coccinea. Scarlet Oak.

Large forest tree, with gray or reddish barks; leaves 4 to 8 inches long, deep cut, scarlet in autumn; cup covering half of acorn.

Quercus marilandica, *Quercus nigra* (Wangenheim, 1781). Black Jack, Barren Oak.

A small scrubby tree, bark rough, and nearly black; leaves broad and wedge-shaped, 3 to 5-lobed; acorns ovoid and small; of little value, except for fuel. Occurring on high sterile ground.

Quercus pagodaefolia, *Quercus falcata* (Michaux, 1801). Spanish Oak.

A tree 2 to 4 feet in diameter and 80 to 100 feet high; leaves 2 to 4 inches long, deeply lobed and characteristically (usually unevenly) rounded at the base; acorn twice height of cup. Valuable timber tree.

Quercus species? Oak.

A small tree, 15 to 25 feet high; twigs light-colored, variegated; leaves lanceolate or elliptical, somewhat narrower at the short petiole, silvery; acorn and cup small, flat, $\frac{1}{2}$ inch in diameter, not so tall.

ULMACEAE. ELM FAMILY

Ulmus americana. American Elm, White Elm.

A common forest and shade tree, often large, with gray bark; wood hard, leaves oval, doubly serrate, 2 to 4 inches long; flowers early in the spring.

Ulmus fulva, *Ulmus pubescens* (Walter, 1788). Slippery Elm, Red Elm.

A smaller tree than the American elm; inner bark mucilaginous and fragrant; leaves similar to those of the American elm but considerably larger; flowers in March and April.

Ulmus alata. Winged Elm, Wahoo.

A small elm, with corky or winged ridges on the branches; leaves doubly serrate, 1 to 3 inches long.

Planera aquatica. Planer-Tree.

A small tree resembling the elm; leaves ovate or oblong, serrate, somewhat asymmetrical at base, pointed at apex, $1\frac{1}{2}$ - $2\frac{1}{2}$ inches long; flowers greenish, in early spring; fruit short. Shaded creek banks.

Celtis mississippiensis, *Celtis laevigata* (Willdenow, 1811). Hackberry, Southern Hackberry, Sugarberry.

A large tree resembling the beech, but with warty projections on the bark; leaves small, more sharply pointed than in *Celtis occidentalis* with which it probably intergrades (Br. & Br.); small fruits, ripe in July, August.

Celtis species. Hackberry.

A bush species or variety of hackberry with leaves 1 3/4 inches long, pointed, unsymmetrical at base; fruit brown to orange, 1/4 inch in diameter, sweet; perhaps *Celtis pumila*.

MORACEAE. MULBERRY FAMILY

Morus rubra. Mulberry, Red Mulberry.

Small tree; leaves heart-shaped or ovate, often deeply lobed, serrate; flowers in March; fruits in summer, cylindrical, red turning purple, edible. Not frequent.

The *Morus alba*, white mulberry, and *Morus nigra*, black mulberry, found in America, are both introduced from Asia.

LORANTHACEAE. MISTLETOE FAMILY

Phoradendron flavescens, *Viscum flavescens* (Pursh, 1814). Mistletoe.

A yellowish-green parasitic plant 2 to 3 feet long with stout brittle stems, growing on oak and other trees; evergreen; leaves oblong, fleshy, persistent; flowers early, small; berries fleshy, white. The well-known Christmas decoration.

The word *Phoradendron* is Greek for tree-thief.

POLYGONACEAE. BUCKWHEAT FAMILY

Rumex crispus. Dock, Curly Dock.

Coarse weed, 2 to 4 feet high; stem simple or branched, grooved; lower leaves 1 foot long, lanceolate, crisped, upper smaller; flowers small, green; fruits grain in large panicle; roots yellow, June and July. In waste places and along roads. Geog. p. 79.

Polygonum hydropiperoides. Smart Weed, Water-Pepper.

Annual herb, smooth, erect, 1 to 2 feet high; leaves alternate, simple, lanceolate, acute at apex, punctate, acrid, 1 to 4 inches long; green or greenish flowers in narrow paniced racemes, 1 to 3 inches long.

Polygonum punctatum, *Polygonum acre* (H. B. K., 1817). Smart-Weed, Water Smart-Weed, Water-Pepper.

Herb, erect or ascending stem, 2 to 5 feet high; leaves alternate, simple, narrow, lanceolate, acuminate at both ends, very acrid, 2 to 5 inches long; flowers in erect spikes, usually white or whitish, sometimes pale flesh-colored.

AMARANTHACEAE. AMARANTH FAMILY

Amaranthus retroflexus. Amaranth, Pigweed.

A common green weed; stem erect, 1 to several feet high; leaves dull-green, petioled, roughly ovate, 2 to 5 inches long; flowers green, in terminal spikes, August and September. Br. & Br., fig. 1398; compare Geog. *Amaranthus hybridus*, p. 38.

ALSINACEAE. CHICKWEED FAMILY

Alsine media, *Stellaria media* (Smith, 1814). Chickweed, Starwort.

Small annual; leaves ovate or oblong; flowers star-shaped, terminal cymes, from early spring. In damp ground; naturalized from Europe.

CARYOPHYLLACEAE. PINK FAMILY

Silene stellata, *Cucubalus stellatus* (L. 1753). Starry Champion.

Herb erect; stem 2 to 3 feet high, slender, enlarged at joints; leaves in whorls of 4, lanceolate, pointed, sessile, 2 inches long; flowers white, small, in cymes, July and August; seeds black. On rich shaded banks.

CHENOPODIACEAE. GOOSEFOOT FAMILY

Chenopodium album. Lamb's Quarter, Goosefoot, Pigweed.

A common erect weed, 1 to 8 feet high; leaves pale, mealy, rhombic or variable in form, 1 to 4 inches long; flowers small, in dense panicles, greenish; July and August; introduced from Europe. In waste places. Geog. p. 127.

PHYTOLACCACEAE. POKEWEED FAMILY

Phytolacca decandra. Pokeweed, Pokeberry.

A strong-smelling herb, 3 to 12 feet high, smooth; leaves ovate-lanceolate, pointed, 5 to 12 inches long; flowers rose-pink, July to September; dark purple conspicuous berries. Used in medicine.

PORTULACACEAE. PURSLANE FAMILY

Portulaca oleracea. Purslane.

Stem low, short, smooth, prostrate, spreading; leaves cuneate or obovate, short, very fleshy; flowers solitary, sessile, yellow, May to September; capsules globular, many-seeded.

Claytonia virginica. Spring Beauty.

Stem generally simple, ascending 6 to 12 inches; leaves linear-lanceolate, narrow, 3 to 6 inches long; flower white or pink or rose-colored; petals and stamens five, early spring. In woodlands. House, pl. 51.

HYPERICACEAE. ST. JOHN'S-WORT FAMILY

Hypericum prolificum. Shrubby St. John's Wort.

Shrub 1 to 3 feet high, leafy, branched; leaves 1 to 2 inches long, oblong, narrow, opposite, with smaller leaves in axils; flowers yellow, late summer; pods 3-celled. In rocky places.

Hypericum myrtifolium, *Hypericum glaucum* (Michx, 1803). Pale St. John's Wort.

Stem tall, branching; leaves 1 to 1 1/2 inches, elliptical, oblong, or ovate, clasping; flowers golden yellow, showy, July-August.

Hypericum densiflorum (Pursh, 1814). St. John's Wort.

A shrubby branched imperfect specimen of St. John's-Wort; leaves 1 to 1 1/2 inches long, lower ones shorter, narrowly oblong or elliptical.

NYPHAEACEAE. WATER LILY FAMILY

Nymphaea advena, *Nuphar advena* (R. Brown, 1811). Yellow Pond Lily, Spatter-dock.

Aquatic herb, floating leaves rising from horizontal rootstocks by petioles several feet long, 6 to 8 inches in diameter, with sinus extending to base; flower yellow, 1 to 3 inches in diameter, in summer.

MAGNOLIACEAE. MAGNOLIA FAMILY

Magnolia virginiana, *Magnolia glauca* (Linnaeus, 1763). Sweet Bay, Swamp Bay, Laurel Magnolia.

A small tall tree, leaves 4 to 6 inches long, thick, green, glaucous beneath; flower in May and June, white, fragrant, 2 to 3 inches in diameter; cone pink, 1 to 2 inches long. Evergreen in Mississippi.

Magnolia acuminata. Cucumber Tree, Mountain Magnolia.

A fine tree 60 to 90 feet high, leaves 7 to 11 inches long, 3 to 6 inches wide, thin, more or less oval but somewhat acuminate, downy beneath; flowers campanulate, white or greenish yellow, large, in spring; cone 3 to 4 inches long; valuable for timber. East side of Bear Creek north of foot bridge.

The *Magnolia grandiflora*, great-flowered magnolia, is abundant as a native tree in south Mississippi, but scarcely reaches as far north as the Tishomingo Park. The *Magnolia macrophylla*, great-leaved magnolia, is said to grow a short distance from the park.

Liriodendron tulipifera. Tulip Tree (wrongly called Poplar or Yellow Poplar).

A tall handsome tree often planted for ornament and very valuable for lumber; leaves smooth, lobed, and as if cut off across the end; flower bell-shaped, yellow with green and orange, in May; cone 3 inches long, acute. The Greek generic name means lily tree, the Latin specific name tulip-bearing.

ANONACEAE. CUSTARD APPLE FAMILY

Asimina triloba. Papaw.

Shrub and small tree, 6 to 20 feet high; smooth bark easily detached in long strips from the trunk; oblong leaves 4 to 8 inches long, pointed; flowers dark purplish brown, small, in March; fruit oblong, many-seeded, suggesting bananas, edible to some people. Rich ground, rare in the park.

Asimina parviflora. Small Papaw.

Shrub 2 to 5 feet high; leaves thin, obovate-oblong; flowers greenish-purple, March-April; fruit fleshy, 1 1/2 inches long, with few seeds, August and September. Not Common. Also spelled pawpaw.

RANUNCULACEAE. BUTTERCUP OR CROWFOOT FAMILY

Xanthorhiza apiifolia. Yellow Root, Shrub Yellow Root.

A smooth slender shrub, with yellow bitter roots, 1 to 2 1/2 inches high; leaves clustered at end of stem, long-petioled, pinnate (the outer three sometimes united), lobed and toothed; flowers inconspicuous, 5-parted, dark purple. Formerly used in medicine and in dyeing.

The generic name is also spelled with initial Z and with double r.

Clematis virginiana. Virgin Bower, Clematis.

Long climbing vine; leaves opposite, compound; leaflets oblong, toothed, 2 to 3 inches long; flowers dioecious, many, white or yellowish; akenes with persistent styles. House, Fig. XVI.

Clematis viorna. Leather Flower, Leather-Flowered Clematis.

Smooth climbing vine, 10 feet long; leaves compound (some entire); leaflets entire or lobed; flowers with thick leathery sepals, reddish-brown, 1 inch long; persistent styles; plumose. Bear Creek valley.

Syndesmon thalictroides, *Anemone thalictroides* (L. 1753), *Anemone thalictroides* (Spach. 1839). Rue Anemone.

Stem slender, springing from cluster of roots, 6 to 10 inches high; leaves compound; leaflets long-petioled, roundish; flowers perfect, white, 1/2 to 1 inch in diameter; in early spring, (resembling those of anemone) petals none. In the woody valley to the west. House, pl. 68 B.

Ranunculus fascicularis. Early Buttercup.

Tufted plant, 6 to 12 inches high; leaves petioled, 3-5-parted, the leaflets deeply lobed; flowers 5-parted, bright yellow, about 1 inch in diameter, April and May.

Ranunculus recurvatus. Hooked Crowfoot.

Stem erect, 8-24 inches high, usually hirsute, branching leaves with long petioles, 3-parted, with subdivisions toothed and lobed; flowers very small, light yellow, April to June; akenes pointed with a recurved hooked beak.

Ranunculus pusillus. Spearwort.

Weak annual, with slender branching stem, 6-12 inches high; leaves very narrow, lanceolate, almost linear; flowers very small, yellow, April to July.

BERBERIDACEAE. BARBERRY FAMILY

Podophyllum peltatum. May Apple, Mandrake.

Perennial herb with thick creeping rootstock; stem with two leaves, 12 to 16 inches high; leaves peltate but deeply lobed; flower single, white, two inches in diameter, in April and May; fruit a large fleshy berry the size of a hen's egg, yellowish; leaves and root poisonous.

MENISPERMACEAE. MOONSEED FAMILY

Cebatha carolina, *Menispermum carolinum* (Linnaeus, 1753). Carolina Moonseed.

A slender vine climbing over other shrubs and small trees; leaves broadly ovate, cordate, thin, petioled, 2 to 4 inches long; flowers small, white or greenish white, July; scarlet berries in clusters in fall.

LAURACEAE. LAUREL FAMILY

Sassafras sassafras, *Sassafras officinale* (Nees and Ebermaier, 1831).

Sassafras.

A tree growing to great height and diameter; bark rough and spicy; leaves large, entire or often deeply 3-lobed, aromatic, as also the twigs; flowers small, appearing in the spring; root used for aromatic oil and for "tea". Common in the park.

PAPAVERACEAE. POPPY FAMILY

Sanguinaria canadensis. Bloodroot, Red Puccoon.

A small low herb; rootstock thick, with orange-red juice; leaves large, broad, palmate and deeply lobed; flowers white, sometimes pinkish, small, April and May; pods one-celled; seeds crested.

BRASSICACEAE. MUSTARD FAMILY

Lepidium virginicum. Pepper-Grass.

Stem smooth, erect, branched, 1 to 2 feet high; basal leaves spatulate or obovate, dentate, stem leaves smaller; flowers small, in terminal racemes, white, June to September; pod flat, small.

Bursa bursa-pastoris, *Thlaspi bursa-pastoris* (L.), *Capsella bursa-pastoris* (Medic, 1792). Shepherd's Purse.

Stem erect, branching, 6 to 18 inches high; basal leaves clustered, lobed, stem-leaves few or none; flowers white, small, in spring; seed pods small, flat; from Europe, now wide-spread. In fields and waste ground.

SAXIFRAGACEAE. SAXIFRAGE FAMILY

Saxifraga virginicensis. Early Saxifrage.

Scape 4 to 10 feet high, erect; leaves obovate, oblanceolate, tapering into a petiole, clustered at roots; flowers in cymose clusters, white or varied, April to June. Among rocks and on hillsides. Br. & Br., fig. 1833.

Heuchera americana. Alum Root.

Stem erect, stout, generally leafless; leaves mostly basal with long petioles thin, heart-shaped but lobed or dentate; flowers in racemes on top of stem.

Itea virginica. Itea.

A branching shrub 4 to 9 feet high; leaves 1 to 3 inches long, narrowly oval, serrate; flowers in a terminal raceme, white, 2 to 5 or 6 inches long. Valley of Bear Creek.

Decumaria barbara, *Decumaria sarmentosa* (Ell. 1817). *Decumaria*.

Climbing vine or shrub, ascending trunk of trees; leaves opposite, elliptical or ovate, entire, shining, 2 to 4 inches long; flowers white, fragrant, May and June; seeds numerous. In swampy ground in Bear Creek valley.

Hydrangea quercifolia. Oak-Leaf Hydrangea, Seven Bark.

Stout shrub, 3 to 8 feet high; leaves large, 5-lobed; flowers clustered in oblong panicle, many of them sterile, white, occasionally with a pink tint. Very abundant and pretty in May and June along sandstone cliffs.

Hydrangea arborescens. *Hydrangea vulgaris* (Michaux, 1803). Wild Hydrangea.

Shrub 3 to 8 feet high; leaves ovate, pointed, serrate, 4 to 5 inches long; flowers in flat cymes with marginal sterile flower. Often found in park with the oak-leafed hydrangea, generally smaller.

There is some difference in the naming of the hydrangeas. Mohr speaks of "intergrading forms", and Gray's Manual (6th Ed.) doesn't even mention *H. quercifolia*. *H. radiata* is given also by some botanists.

HAMAMELIDACEAE. WITCH HAZEL FAMILY

Hamamelis virginiana. Witch Hazel.

A tall shrub 15 to 20 feet high with oval leaves resembling those of the hazel bush, 3 to 4 inches long, slightly lop-sided; flowers late in autumn or in winter, yellow; used in medicine and lotions. Abundant in valley east of Bear Creek. Geog. p. 232.

Liquidambar styraciflua. Red Gum, Sweet Gum, Bilsted. ?

A large handsome tree with gray bark, branches often corked; leaves 5 to 7 lobed, sharply pointed, fragrant when crushed, deeply colored in fall; fruit a prickly ball 1 to 1½ inches in diameter; wood and gum valuable. Abundant in the valley along the creek.

URTICACEAE.

Boehmeria cylindrica, *Urtica cylindrica* (L. 1753). False Nettle.

Perennial, erect, no stings, 1 to 3 feet high; leaves generally opposite, ovate, or ovate-lanceolate, pointed, 1 to 4 inches long, coarsely dentate; flowers frequently dioecious, greenish, in axillary spikes, July to September. In damp marshy woods; variable. House pl. 45.

PLATANACEAE. PLANE TREE FAMILY

Platanus occidentalis. Sycamore, Plane Tree.

A very large tree, outer bark peeling off revealing white close inner bark; leaves very wide, angular or lobed; fruit balls an inch or more in diameter, later scattering seeds by wind and water. Sparse, along the river.

ROSACEAE. ROSE FAMILY

Rubus argutus, *Rubus villosus* (Aiton, 1789). Blackberry.

Bush 3 to 9 feet high; strong, hooked, prickled; large white flowers; berry oblong, black, edible, June and July. Frequent.

Rubus trivialis. Dewberry, Low Bush Blackberry.

Low trailing vine; prickles; white flower in February and March; berry 1 inch long, black, excellent, June and July.

Fragaria virginiana. Wild Strawberry.

Small perennial herb propagating by runners; leaves trifoliate, deeply serrate; white blooms in March, April, and May; fruit red, ovoid, edible.

Rosa humilis. Low Rose.

Stem low, erect, armed with prickles; 1 to 2 feet high; leaflets 5 to 7; flowers few, May and June. Common in dry soil.

Rosa carolina. Swamp Rose.

Bushy, spiny, 4 to 6 feet high; leaflets usually 7, though 5 to 9 are found, serrate; flowers in June. Low and swampy ground, not common.

Rosa rubiginosa. Sweet Briar, Eglantine.

Shrub several feet high, with prickles; leaves long, compound, fragrant; leaflets five to seven, ovate or oval, serrate; flowers generally solitary, white or pink; summer; fruit oval, red. In dry waste places. Introduced.

There seems to be considerable difference in the naming of roses.

Pyrus angustifolia, *Malus angustifolia* (Mich. 1803). Crab Apple.

Small tree, height 25 feet or more; leaves 2 to 3 inches long, dentate, oblong or oval; flowers pink or rose, very fragrant, early spring; fruit a small sour apple, in autumn; not common.

Agrimonia incisa. Agrimony.

A small herb with hairy stem, 2 feet high; leaves divided into 5 to 9 unequal pinnae (counting the pairs of small leaflets between); leaflets increasing in size outwardly, round-toothed; flowers small, yellow, on long racemes.

Potentilla canadensis. Five-Finger.

Small spreading plant with runners 1 to 2 feet long; leaves five-foliolate (giving the common name), about 2 inches in spread; leaflets serrate; flowers small, yellow.

Aronia arbutifolia, *Mespilus arbutifolia* (Linnaeus, 1753). Red Chokeberry.

Branching shrub, 6 to 12 feet high; leaves short-petioled, oblong, elliptical, finely toothed, 2 to 3 inches long; flowers in clusters, small 5-parted, fragrant, white or pink; fruit small, globose, bright red, very pretty.

Amelanchier canadensis. Service-Berry, June-Berry (In New England called Shad Bush).

Shrub or small tree; leaves ovate or oval, serrate, 1 to 3 inches long; flowers white in clusters, March and April; fruit purple to black, edible, June. Geog. p. 43, see leaf pattern in Mathews, p. 62.

Crataegus crus-galli. Cockspur Thorn, Hawthorn, Red Haw.

Small shrub or tree with long stout thorns; leaves thick, shining above, obovate, serrate; flowers white, 5-parted, in May and June; fruit round or pear-shaped, red.

Crataegus spathulata. Small-Fruited Haw.

Shrub or small tree, with thorns 1 to 2 inches long; leaves small, spatulate, crenate at the summit; flowers white, April; fruit red, October and November.

Crataegus apiifolia. Parsley Haw, Cut-Leaf Haw.

Shrub or small tree, with stout spines; leaves deeply cleft into 5 to 7 parts, truncate at base; flowers white, ill-smelling, March and April; fruit red or scarlet.

Crataegus mollis, *Crataegus coccinea mollis* (T. & G. 1840). Downy Haw.

Tree 20 to 30 feet high; leaves ovate, nearly round, petioled; flowers white, in April; fruits ripe in October. Geog. p. 47.

There are several other species in the park. Sargent gives 153 species of *crataegus* for North America; Small (Beadle) gives 185 species for the south-eastern states alone.

Prunus americana. Wild Plum.

A small tree; leaves thick, ovate, pointed, serrate, 2 to 3 inches long; flowers white, numerous; fruit globose, red or yellow, edible.

Prunus angustifolia, *Prunus chicasa* (Michaux, 1803). Chickasaw Plum, Old Field Plum.

A small tree, 10 to 20 feet high, somewhat thorny; leaves narrow, lanceolate or oblong-lanceolate, pointed, serrate; flowers small, appearing early; fruit red, globular, thin-skinned, edible, ripe in June and July; stone globular.

Prunus serotina. Wild Black Cherry.

A tree reaching 80 feet in height and 3 to 4 feet in diameter, but usually much smaller; bitter aromatic bark; leaves thick, lanceolate or ovate, pointed at the apex, serrate; racemes long and spreading; fruit globose, dark purple or black, astringent, in autumn. Common.

VICIACEAE. VETCH FAMILY

Schrankia uncinata. Sensitive-Briar.

Trailing prostrate prickly vine, grooved, 3 to 5 feet long; leaves twice-pinnate, sensitive; leaflets 8 to 15 pairs, small; flowers pink or rose-colored, in globular head; pods 2 inches long; most of the plant thickly set with short recurved hooks or prickles.

Cercis canadensis. Red Bud, Judas Tree.

A small ornamental tree, 20 to 30 feet high; leaves heart-shaped, about 4 inches in diameter; flowers small, deep red, appearing in April before the leaves; seed-pods 3 to 4 inches long. Frequent.

The latter English name is from the tradition that Judas hanged himself on this tree, the Eastern species, *Cercis siliquastrum*.

Gleditschia ariacanthos. Honey Locust, Sweet Locust.

A tree of medium to large size, armed with formidable thorns; leaves petioled, compound; flowers inconspicuous, in May; pods flat, generally twisted, 9-18 inches long, containing many seeds. Bank of creek where the road descends into the valley.

Baptisia leucantha. Wild Indigo, False Indigo.

Smooth branching herb, 3 to 5 feet high; leaves petioled, divided into three obovate or oblanceolate leaflets 1½ to 2 inches long, turning dark upon drying; flowers white, about 1 inch long, in long erect racemes; pod large, ellipsoidal. Bear Creek valley.

Crotalaria sagittalis. Rattle-Box, Cat-Bell.

Stem erect, branching, 4-10 inches high; leaves oblong, lanceolate, 2 or 3 times as long as wide, nearly sessile; flowers yellow, in summer; seed pod ½ to 1 inch long, dark, nearly cylindrical or ellipsoidal, making a rattle when the seeds are mature, August and September.

Cassia chamaecrista. Sensitive Pea, Partridge Pea.

Herb erect, 1 to 2 feet high, branching; leaves petioled, subdivided into 15-20 pairs of linear leaflets, sensitive to touch; flowers yellow, in axils; pods linear, about 2 inches long. Common.

Amorpha fruticosa. False Indigo.

Shrub 5 to 15 feet high; leaves petioled, with 11 to 25 oval or elliptical leaflets; flowers violet or purple, in long dense racemes, in early summer.

Cracca virginiana, *Tephrosia virginiana* (Persoon, 1807). Goat's Rue, Hoary Pea, (Cat-Gut).

Clustered plant 1 to 2 feet high, leafy, pubescent with short white hairs; leaves compound with 9 to 27 narrow oblong leaflets; flowers in terminal raceme, yellowish white or showy yellowish purple, in May, June, and July; pod linear, downy. In dry soil, fairly common.

Wistaria frutescens, *Kraunhia frutescens* (Greene, 1891). American Wistaria.

A long vine 30 to 40 feet, but shorter and smaller than the cultivated wistaria (*Wistaria chinensis*); flowers in dense lilac-purple racemes 2 to 7 inches long; pod linear, 2 or 3 inches long. Along stream, not common.

Robinia pseudacacia. Black Locust, Locust Tree.

Medium-sized tree; compound leaves; leaflets about 17 in number, elliptical, 1 to 2 inches long; flower white, very fragrant, long and hanging, in May and June; pod 2 to 4 inches long; wood strong and durable especially for posts. Not abundant.

Trifolium pratense. Red Clover.

Trifolium repens. White Clover.

Trifolium procumbens. Yellow Clover.

Familiar clovers, introduced or escaped; late spring.

Meibomia sessilifolia, *Desmodium sessilifolium* (Tor. & Gray, 1838).
Tick Trefoil, Beggar Tick.

Stem erect, small, green, 3 to 8 feet high, sometimes divided near the top; leaves sessile, three-foliolate, green; leaflets 3 inches long, linear; flowers small, white or purple, labiate, in panicles, July and August; loment flat 1 to 3 jointed (usually 2-jointed); seeds transported by adhering to animals, clothing, etc. In dry open upland; sometimes troublesome.

Lespedeza striata. Lespedeza, Japanese Clover.

Stem branching and spreading, tufted, 6 to 12 inches long; leaves trifoliolate; leaflets oblong, $\frac{1}{2}$ to $\frac{3}{4}$ inches long; flowers pink or purple, $\frac{1}{2}$ inch long, valuable for hay. Introduced from eastern Asia.

Lespedeza virginica. Slender Bush-Clover, Virginia Bush-Clover.

Stem erect, slender, usually simple, crowded with narrow leaflets and violet-purple flowers, July to September; leaflets in threes, 5 times as long as wide.

Lespedeza frutescens. Bush-Clover.

Stem erect, slender, 1 to 3 feet high, crowded with small elliptical leaflets and violet-purple flowers, August and September; leaflets in threes, twice as long as wide; heads heavier than in the preceding species.

Vicia sativa. Common Vetch, Tare.

Stem simple, 1 to 2 feet; leaf compound with tendrils at end; leaflets 8 to 14; flowers purple or violet-purple, March to April; escaped from cultivation.

Vicia caroliniana, *Vicia parviflora* (Michaux, 1803). Carolina Vetch.

Trailing or climbing vine, 2 or 3 feet high, with tendrils at tip of branches; leaves with 8 to 20 blunt leaflets; flowers small, nearly white; small pod. Spring. In open woods.

Clitoria mariana. Butterfly Pea.

Erect or climbing herb, reaching several feet in length in the latter form; leaves generally trifoliolate; leaflets lanceolate and blunt at base; flowers about 2 inches long, showy, blue. Fairly common.

Phaseolus polystachyus, *Phaseolus perennis* (Walter, 1788). Wild Bean.

Vine, climbing, branching, 3 to 13 feet long; leaves trifoliate; leaflets broadly ovate, pointed, sometimes unsymmetrical, 2 to 4 inches long; racemes axillary, loosely-flowered; flowers purple to whitish; bean-pods slightly curved, flat, 1 to 3 inches long.

GERANIACEAE GERANIUM FAMILY

Geranium maculatum. Wild Geranium, Spotted Cranesbill.

Stem erect, hairy, generally forking, 1 to 2 feet high; leaves palmately lobed, the divisions sharply toothed; flowers regular, 5-parted, light purple, 1 inch wide, in spring.

Geranium carolinianum. Cranesbill.

Stem erect, branched, hairy, 6-15 inches high; leaves palmate, deeply cleft, with toothed or lobed divisions; flowers in clusters, pale purple or rose-colored, one-half inch wide, in spring; this species about half as large as the preceding.

OXALIDACEAE. WOOD-SORREL FAMILY

Oxalis stricta. Yellow Wood-Sorrel.

Three to 12 inches high; leaves trifoliate; leaflets obcordate; yellow flowers in spring; characteristic oxalic taste.

Oxalis violacea. Violet Wood-Sorrel.

Three to 12 inches high; leaves trifoliate; leaflets obcordate; purple flowers in spring; sour acid taste.

ANACARDIACEAE. CASHEW FAMILY

Rhus radicans. Poison Ivy, Poison Vine.

A climbing and creeping woody vine, running to great length; leaves petioled and divided into three parts; leaflets ovate, pointed, 2 to 4 inches long; flowers and fruit in panicles 1 to 3 inches long; poisonous to the touch. Common.

Rhus toxicodendron. Poison Oak.

A shrub 1 to 4 feet high, standing erect; leaves thick, trifoliate; poisonous and similar to poison ivy, but not vining. Abundant.

There is in Mississippi also a poison sumac, *Rhus vernix* or *Rhus venenata*, 10 to 18 feet high, with pinnate leaves, more poisonous than the poison oak or the poison ivy, which so far I have not found in the park. All three are to be avoided.

Rhus copallina. Sumac, Dwarf Sumac.

A shrub or small tree; leaves pinnate, 6 to 12 inches long; leaflets 9 to 21, lanceolate; flowers green, in large dense panicles, June to August.

Rhus glabra. Smooth Sumac, Scarlet Sumac.

A shrub 2-15 feet high; leaves glabrous, 15 to 20 inches long; leaflets 11-29, lanceolate, long pointed, strongly serrate, 2-5 inches long; flowers greenish-white, in June and July; fruit in large compound clusters, in September and October.

Leaves used for dyeing and tanning; fruit for medicine.

POLYGALACEAE.

Polygala lutea. Orange Milkwort, Wild Bachelor's Button.

Stem erect, 6 to 12 inches high, (no milky juice); leaves simple, entire, basal ones larger, spatulate, or obtuse, upper ones smaller, lanceolate; flowers small, terminal in a head, orange yellow, all summer. In light damp soil. House, pl. 123A, Geog., p. 177.

EUPHORBIACEAE.

Euphorbia corollata. Flowering Spurge.

Stem erect, smooth, 1 to 2 feet high, branching; leaves thick, oblong or oval, entire; umbels generally 5-forked; flowers white, small, in summer and fall. In rich dry ground.

ILICACEAE. HOLLY FAMILY

Ilex opaca. Holly, Evergreen Holly.

A tree 20 to 70 feet high, smooth gray bark; leaves evergreen, thick and rigid, prickled on the edges and apex; flowers white, inconspicuous, spring and early summer; red berries in clusters persisting into the winter. The Christmas tree. Abundant in Bear Creek valley.

Ilex decidua. Deciduous Holly, Swamp Holly.

A shrub or small tree 10 to 30 feet high; leaves obovate or spatulate, slightly serrate, deciduous, 1½ to 3 inches long; small red berries. Low ground.

Ilex verticillata. Winter Berry.

A shrub or small tree, 6 to 25 feet high; leaves oval, acuminate, serrate, deciduous; flowers clustered, small; small red berries in abundance. Bear Creek valley.

CELASTRACEAE. STAFF-TREE FAMILY

Euonymus americanus. Strawberry Bush.

Shrub 3 to 8 feet high; ovate or oblong-lanceolate pointed leaves; flowers greenish (seeming to sit in the middle of the leaves); capsules opening in the fall, showing crimson seeds (hence the strawberry name). Low woods along Bear Creek valley.

ACERACEAE. MAPLE FAMILY

Acer saccharum. Sugar Maple, Sugar Tree, Rock Maple.

A large valuable tree; leaves 3 to 5 inches long, green above, pale below, lobed; fruit in a key or samara; valuable for lumber, for sugar, and for shade.

Acer rubrum. Red Maple, Swamp Maple, Water Maple.

Tall tree, with reddish twigs; leaves 3 to 4 inches long, cordate at base, sharply lobed, beautifully colored in autumn; keys or samaras small, red. Along the stream.

Acer saccharinum, *Acer dasycarpum* (Ehrhart, 1789). Silver Maple, White Maple, Soft Maple.

Small tree; leaves 4 to 6 inches long, deeply lobed, dentate, silvery beneath; samaras large.

Acer negundo, *Negundo aceroides* (Moench, 1794). Box Elder, Ash-Leaved Maple.

Small tree 40 to 50 feet high, greenish twigs; wood soft and easily broken; leaves 3 to 5-foliolate, deeply dentate; low ground, not abundant.

The box elder may be distinguished at once from the other maples by its compound leaf.

VITACEAE. GRAPE FAMILY

Parthenocissus quinquefolia, *Ampelopsis quinquefolia* (Michaux, 1803). Virginia Creeper.

Long climbing vine, with tendrils; leaves with long wire-like stems, divided into five digitate parts, toothed, lanceolate, pointed, serrate beyond the middle, the two lower shorter than the others; flowers white, May and June; berries small, black or blue. Throughout the valley of the park.

Vitis aestivalis. Summer Grape.

High-climbing woody vine; leaves large, 4 to 7 inches, 3 to 5-lobed, pubescent; grapes small, numerous, acid, edible, ripe in September and October.

Vitis cinerea. Downy Grape.

Woody vine; heart-shaped leaves, 3-lobed, with whitish hairs beneath; grapes black, acid. Along the stream.

Vitis rotundifolia. Muscadine, Bullace Grape.

Woody vine, trailing on rocks and bushes and climbing high trees; bark close; leaves cordate, 2 to 3 inches in diameter, with deep triangular dentations; grapes large, scattered, purple, musky, tough but good, ripe in August and September. Throughout the park.

This is the *Vitis vulpina* of Torrey and Gray, 1838, but not of Linnaeus, and is the original of the scuppernong.

TILIACEAE. LINDEN FAMILY

Tilia americana(?) Linden, Basswood.

A large handsome tree, with relatively smooth, light gray bark and spreading branches; leaves ovate, sometimes cordate, thin, green above, lighter green to white below, slightly asymmetrical; flowers white or yellowish-white or cream-colored, fragrant, yielding excellent honey; fruit a small globular woolly nut suspended beneath a float 2 or 3 inches long. Not common; young trees on creek bank opposite where the road descends into the valley.

This is probably the tree described by Sargent as *T. glabra* or *T. neglecta*. He makes 15 species in North America.

MALVACEAE. MALLOW FAMILY

Callirrhoe triangulata, *Malva triangulata* (Gray, 1848). Poppy Mallow, Triangular-leaf Mallow.

Stem 2 feet high, slender, nearly erect; lower leaves triangular or heart-shaped, upper more irregular, long-petioled; flowers purple. In dry land.

VIOLACEAE. VIOLET FAMILY

Viola palmata. Blue Violet, Blue Wood-Violet.

Low herb; leaves from a thick rootstock, the upper ones lobed, parted, or palmate, the lower ones reniform or cordate; flowers on an erect scape, 5-parted, perfect but irregular, the lower petal larger and making a sack or spur, sky blue. April and May.

Viola pedata. Bird's Foot Violet.

Rootstock short, thick, erect; leaves 7 to 9-parted almost to the base, the divisions nearly linear or spatulate; flowers one inch broad, lilac, deep blue, or purple, April and May.

Viola primulaefolia. Primrose-Leaved Violet.

A violet with entire oblong leaves (primrose-shaped) and small white flowers. April and May.

Viola papilionacea, *Viola cucullata* (Le Conte, 1828). Common Wood Violet.

Low herb arising from rootstock; flowers 5-parted, often irregular, spurred, blue to violet, in spring. Low ground.

Viola blanda. Violet.

About 6 inches tall; leaves cordate or rounded, on long petioles; flowers fragrant, white, April and May. On low ground, not common. Br. & Br., fig. 2497.

Illustrations of various violets may be seen in House pl. 138-142 and in Br. and Br., fig. 2484-2512; see general illustrations in Geog., p. 227.

Considerable hybridization (or mixing) seems to have taken place among the violets.

PASSIFLORACEAE. PASSION FLOWER FAMILY

Passiflora incarnata. Maypop, Common Passion Flower.

Trailing or low-climbing vine; leaves 3-cleft, serrate; tendrils axillary; purple handsome flowers, in June and July, 2 to 3 inches in diameter, in which the symbols of the crucifixion may be seen by those who can find them; petals and stamens five; fruit a yellowish pod as large as a hen's egg and edible (for some people). Over all the park.

Passiflora lutea. Yellow Passion Flower.

Slender, low-climbing vine, with blunt cordate 3-lobed leaves, 2 to 3 inches broad, broader than long; tendrils; greenish-yellow flower, about one inch in diameter, May to July; less conspicuous than *Passiflora incarnata*.

CACTACEAE. CACTUS FAMILY

Opuntia opuntia, *Opuntia vulgaris* (Miller, 1768), *Cactus opuntia* (Linnaeus, 1753). Prickly Pear, Cactus, Indian Fig.

Low, prostrate or ascending; joints oblong, lanceolate, or (the younger ones) obovate, flat, 3 to 6 inches long; leaves rudimentary, appressed; bristles; flowers yellow; fruit red, fleshy, edible, 1 to 1 1/2 inches long. Growing in scattered colonies.

ONAGRACEAE. EVENING PRIMROSE FAMILY

Onagra biennis, *Oenothera biennis* (Linnaeus, 1753). Evening Primrose.

Stout erect stem, simple or branched, hirsute, 2 to 7 feet high; leaves lanceolate, acute, more or less wavy, 1 to 4 inches long; flowers large, 4-parted, with obcordate petals, yellow, opening in the evening, odorous.

ARALIACEAE. GINSENG FAMILY

Aralia spinosa. Hercules' Club, Angelica-Tree.

A spiny shrub or small tree of peculiar aspect, 10 to 25 feet high; leaves doubly compound, immense, reaching 3 to 4 feet in length; flowers white, terminal, in large umbels, in June; fruit following the arrangement of the flowers; individual berries small. Common.

APIACEAE. PARSLEY FAMILY

Daucus pusillus. Wild Carrot, Queen Ann's Lace.

Stem erect, bristly, 2 feet high; leaves finely divided; flowers in flattened compound umbels, white, showy; fruit dorsally flattened. In open dry fields.

Daucus carota. Wild Carrot, Queen Ann's Lace.

This species from which our edible carrot was developed, may exist in the park. It is somewhat taller than *Daucus pusillus*. Leaves much divided; flower in regular compound umbels, drying into a cupped seed cluster forming a "bird's-nest"; naturalized from Europe and now a troublesome weed in many places. Geog. p. 186.

Eryngium yuccaefolium, *Eryngium aquaticum* (Linnaeus, 1753).

Button Snakeroot, Eryngo.

Stem stout, 2 to 5 feet high; leaves linear, lanceolate, 1 to 2 1/2 feet long, narrow, parallel-veined, fringed with bristles; globular thick prickly head, 1 inch in diameter, three smaller. Relatively infrequent.

Cicuta maculata. Water Hemlock, Cow-Bane, Beaver-Poison.

Stem erect, large, smooth, hollow, with purple lines or purplish, 2 to 6 feet high; leaves compound, poisonous; leaflets lanceolate, pointed, serrate, 1 to 5 inches long; flower small, white, in large umbels. Growing near water.

Zizia aurea. Golden Meadow Parsnip.

Stem 2 to 3 feet high; leaves divided; flowers yellow, clustered in umbels, in spring; seed prominent in fall. Geol. p. 185.

The specimen used is imperfect, hence this determination is uncertain.

CORNACEAE. DOGWOOD FAMILY

Cornus florida. Dogwood, Flowering Dogwood.

Tree 15 to 35 feet high, very ornamental when in bloom or in fruit; wood hard and valuable; leaves ovate, pointed bright red in fall; flowers white or greenish white, occasionally with a touch of pink or rose, 4-parted, notched, in May; berries red and showy. Abundant along edge of woods and somewhat exposed places.

Cornus stricta, *Cornus fastigiata* (Michaux, 1803). Cornel, Stiff Dogwood.

A shrub or small tree, 6 to 16 feet high; leaves small, ovate, or oblong, and pointed; flowers in cymes, loose and flat; small pale blue fruit.

In addition to these two there are probably one or two other small dogwoods in the park.

Nyssa sylvatica, *Nyssa multiflora* (Wangenheim, 1787). Black Gum.

A large upland tree with rough bark, somewhat valuable for its tough wood; leaves entire, ovate or obovate, glossy, 2 to 4 inches long, turning crimson in fall; fruit ovoid, black or bluish-black, acid, and not edible, half-inch long, abundant. September and October; stone ovoid.

Nyssa aquatica, *Nyssa uniflora* (Wangenheim, 1787). Tupelo Gum.

A large tree growing in swamps; leaves ovate or oblong 4 to 12 inches long; flowers inconspicuous; fruit oblong, oval, blue, 1 inch long. (Cassell).

ERICACEAE. HEATH FAMILY

Azalea nudiflora, *Rhododendron nudiflorum* (Torrey, 1824). Azalea, Purple Azalea, Wild Honeysuckle.

A handsome shrub 3 to 6 feet high, branched; leaves oblong or obovate; flowers pink, rose-red, to white and yellow. Abundant. House Pl. 154.

Kalmia latifolia. Mountain Laurel, Calico Bush.

Showy shrub, 4 to 16 feet high; branches smooth; leaves elliptical, acute at both ends, bright green on both sides, shining; flowers large, white, or rose-color, in May and June. Abundant in the park. House, Pl. 156-A.

Oxydendrum arboreum, *Andromeda arborea* (Linnaeus, 1753). Sourwood, Sorrel Tree.

A small tree, 15 to 40 feet high; leaves oblong, finely serrate, pointed, 4 to 6 inches long; flowers small, white, in long terminal racemes, in April and May. Around the brow of the sandstone cap above the valley.

VACCINIACEAE. HUCKLEBERRY FAMILY

Vaccinium arboreum. Farkleberry, Sparkleberry.

Shrub or small tree, with rigid branches; leaves oval, oblong, or obovate, glossy and green above, evergreen in Mississippi, 1/2 to 1 inch long; flowers small, white, April to June; berries small, globose, black, mealy, and insipid.

Vaccinium corymbosum. Blueberry, Huckleberry.

Bush 4 to 12 feet high; branches stiff; leaves oval or oblong, green above, 1 to 2 inches long; flowers small, white to pale pink; berries small, globose, blue (or black), edible.

Vaccinium stamineum. Deerberry, Squawberry.

Shrub two or more feet high; leaves ovate to obovate, deciduous; flowers numerous, pendulous, greenish-white, bell-shaped, April to June; berries greenish, globose, not edible. In dry woods.

EBENACEAE. EBONY FAMILY

Diospyros virginiana. Persimmon.

Small to medium size tree; leaves ovate with short petioles, deciduous; flowers inconspicuous; fruit globular, 1 to 1 1/2 inches in diameter, astringent until fully ripe, then sweet and edible, September to November; seeds flat and large.

STYRACACEAE. STORAX FAMILY

Styrax grandifolia. Storax.

Shrub 4 to 10 feet high; leaves 2 to 5 inches long, obovate, deciduous, pale beneath, green above, alternate; flowers white, showy, in loose racemes, April-May, fruit and seeds globular. In woods.

OLEACEAE. OLIVE FAMILY

Fraxinus americana. Ash, White Ash.

A tall handsome tree, valuable for timber and shade; leaves compound; leaflets 5 to 9 inches, ovate-oblong or lanceolate, pointed, entire, 3 to 5 inches long; flowers generally dioecious, inconspicuous; fruit a wedge-linear samara, 1 to 1 1/2 inches long.

Chionanthus virginica. Fringe-Tree, Grandfather Greybeard.

A shrub or low tree, 6 to 13 feet high; leaves entire, oblong, deciduous, 3 to 4 inches long; flowers delicate, white, hanging in fringes, April. Rich ground, along Bear Creek, rare. Hylander p. 432.

LOGANIACEAE. LOGANIA FAMILY

Gelsemium sempervirens, *Bignonia sempervirens* (Linnaeus, 1753).
Yellow Jessamine.

A smooth woody climbing vine with opposite lanceolate or ovate evergreen leaves; flowers yellow, showy, handsome, fragrant, an inch long or longer, in early spring; seeds flat, winged; poisonous throughout.

Spigelia marilandica, *Lonicera marilandica* (Linnaeus, 1753). Pink Root, Indian Pink.

Herb 1 to 2 feet high; leaves sessile, ovate or lanceolate, acute at apex, 2 to 4 inches long; flowers in terminal one-sided spike, corolla slender, 1 to 2 inches long, red without, yellow within; root used as a popular vermifuge.

GENTIANACEAE. GENTIAN FAMILY

Gentiana andrewsii. Closed Gentian.

Stem smooth, leafy, 1 to 1 1/2 feet high; leaves green, lanceolate, entire, 1 1/2 to 2 1/2 inches long; flowers in cluster, closed, 1 1/2 inch long; seeds winged. Above the sandstone.

ASCLEPIADACEAE. MILKWEED FAMILY

Asclepias tuberosa. Butterfly Weed, Pleurisy Root.

Stem 1 to 2 feet high, in clusters often; leaves alternate, 2 to 3 inches long; flowers bright, orange at top of stalk, in June and July. Light dry soil. House pl. 171.

Asclepias obtusifolia, *Asclepias purpurascens* (Walter, 1788). Obtuse-Leaved Milk-Weed.

Stem stout, erect, 2 to 3 feet high; leaves sessile or nearly so, oblong, nearly elliptical, wavy, 2 to 4 inches long; flowers many in umbels, greenish-purple, in June and July; follicles smooth, 5 inches long; seed comose.

Asclepias humistrata, *Asclepias amplexicaulis*. (Michx, 1803). Milkweed, (Silkweed).

Stem 2 to 3 feet high, erect, smooth; leaves opposite, oblong, wavy-margined; flower numerous, in terminal umbel, greenish purple, May, June, and July; seed-pod 4 to 6 inches long; seed with long coma. In dry sandy soil. House pl. 173.

Vincetoxicum carolinense, *Gonolobus carolinensis* (R. Brown, 1820). Vincetoxicum.

Stem hirsute, vining; leaves opposite, thin, cordate, petioled, 4 to 7 inches long; flowers 5-parted, wheel-shaped, brownish-purple in summer; follicles with soft projections (muricate); seeds flat, with abundant white coma.

APOCYNACEAE. DOGBANE FAMILY

Amsonia amsonia, *Amsonia tabernaemontana* (Walt, 1788). Amsonia.

Erect herb; stem 2 to 3 feet high, branching; leaves numerous, alternate, acute; flowers small, five-parted, bluish, April and May. Upper end of Bear Creek valley.

CONVOLVULACEAE. MORNING-GLORY FAMILY

Breweria humistrata, *Convolvulus humistratus*. (Waltz, 1788). Southern Breweria.

Stem slender, procumbent or creeping; leaves approximately elliptical, short-petioled, pubescent; flowers small, corolla white; May-August. In dry barrens.

Ipomoea purpurea, *Convolvulus purpureus* (Linnaeus, 1762). Morning-glory.

A trailing vine, 5 to 10 feet long; leaves broadly heart-shaped, 2 to 4 inches wide; flower funnel-shaped, variegated with blue, purple, and pink, 2 inches long, June to September. Introduced from tropical America.

Ipomoea pandurata, *Convolvulus panduratus* (Linnaeus, 1753). Wild Potato Vine.

Stem trailing several feet from a large fleshy root; leaves heart-shaped, acuminate, sometimes fiddle-shaped, 2 to 5 inches long; flower open funnel-form, white, pinkish, purple in the throat, 3 inches long, May to September.

CUSCUTACEAE. DODDER FAMILY

Cuscuta gronovii. Love Vine, Large Love Vine, Dodder.

A parasitic climbing vine, thread-like, yellow to orange; no leaves; flowers white, numerous, in dense cymes. In the creek valley. House pl. 170. B.

Cuscuta glomerata, *Cuscuta paradoxa* (Rafinesque, 1820). Love Vine, Glomerate Dodder.

A parasitic climbing vine, yellowish white; no leaves; flowers sessile, numerous, white with yellow anthers, in dense clusters forming a spiral around the host; spiral clusters of small seeds in fall. Valley of Bear Creek.

POLEMONIACEAE. PHLOX FAMILY

Phlox divaricata. Blue Phlox, Sweet William.

Stem erect or ascending, slender, 12 to 16 inches high; leaves lanceolate, the lower ones broader, 1 to 1 1/2 inches long; flowers blue, 1 inch in diameter, slightly fragrant, grouped in clusters, late spring.

Phlox pilosa. Downy Phlox.

Stem 1 to 1 1/2 feet high, erect, slender; leaves linear or lanceolate, pointed, 1 to 3 inches long; flowers 5-parted, pink or rose to white, in terminal cymes; April and May. In dry woods. Dormon pl. 19, 4.

VERBENACEAE. VERBENA FAMILY

Verbena hastata. Blue Vervain, False Vervain.

Stem erect, square, branching, 2 to 4 feet high; leaves oblong, lanceolate, pointed, serrate; spikes linear, pointed, paniced; flower sessile, blue or violet, July-September. On low ground. House pl. 183 B, Geog. p. 227.

Verbena canadensis, *Buchnera canadensis* (L. Mant., 1767), *Verbena aubletia* (Jacq. 172). Aublet's Verbena.

Stem 8 to 12 inches high, slender, branched; leaves short, pinnatifid; flowers rose-purple, small in clusters, March and April and early summer. In dry places. Often cultivated in gardens.

Callicarpa americana. French Mulberry.

A branching shrub, 3 to 8 feet high; leaves opposite, thin, ovate, scurfy, toothed, 3 to 6 inches long; flowers in clusters, bluish; fruit globular, violet-blue, conspicuous in showy clusters.

NEPETACEAE. MINT FAMILY

Trichostema dichotomum. Blue Curls.

Stem slender, branching, 10 to 20 inches high; leaves entire, narrow, oblong; flowers in panicles, small, blue, violet, purple or pink, stamens blue or violet, projecting out of flower and curved (hence the name), July, in dry, sandy soil. House pl. 182 B, Dorman fig. 184, Br. & Br. fig. 3073. (Not Whitehouse's Blue Curls, *Phacelia congesta*, p. 112.)

Trichostema lineare, *Trichostema brachiatum* (Lam., 1768). Narrow-Leafed Blue Curls.

Stem 1 1/2 feet high, slender, erect, much branched; leaves linear, entire; flowers small, blue (but variable), mid-summer. In dry open soil.

Morton uses the name *T. setaceum* (Houtt), as the earliest name.

Teucrium canadense. Germander, Wood Sage.

Stem, 1-3 feet high, erect, square; leaves 2 1/2 inches long, ovate-lanceolate, acute, serrate; flowers white or purplish, in long simple spikes, in late summer. In low ground and swamps.

Lamium amplexicaule. Dead Nettle, Henbit.

Herb 4 to 10 inches high, not thorny; leaves incised or lobed, lower ones petioled; flower purple, very early; In waste ground. Br. & Br. 3111.

Monarda fistulosa. Horsemint, Wild Bergamot.

Stems 2 to 3 feet high, square, generally branching; leaves ovate, lanceolate, pointed, serrate, 2 to 3 inches long; flowers terminal, white, rose-colored, and purple; characteristic mint odor. Relatively common. House pl. 190 A.

Salvia lyrata. Meadow Sage, Lyre-Leaved Sage.

Stem 1 to 2 feet high, square; leaves lyrate, in clusters near ground, upper pair entire; flower labiate, lower lips larger, 1 inch long, blue, in April and May.

Salvia urticifolia. Nettle-leaf Salvia.

Stem 1 to 2 feet high, square, erect, slender; leaves thin, widely ovate, slightly one-sided, serrate; flowers blue, forming loose spikes. In woodlands.

Pycnanthemum flexuosum, *Koellia flexuosa* (Macm. 1892). (Narrow-Leafed) Mountain Mint, Basil.

Stem slender, rigid, 2 to 3 feet high, erect, branching; flowers in clusters, corolla small, generally white; longer than calyx, slightly aromatic, June-July; leaves linear or nearly so, numerous.

Koellia albescens (Kuntz, 1897), *Pycnanthemum albescens*. Basil, Mountain Mint.

Herb, erect, often hoary or pubescent, branched, square-stemmed, mint-like odor; leaves small, ovate; flowers in whorls, white or purplish, summer and fall. In dry borders.

Scutellaria parvula. Skullcap, Small Skullcap.

Perennial from rootstock; stem slender, erect, branching, 6 to 12 inches high; leaves oval, entire, 1/2 inch long; flowers opposite, solitary in axils, small, 2-lipped, violet or blue, April to June.

Scutellaria altamaha (Small). Skullcap.

Stem erect, 10 or 12 inches tall, simple, purplish; leafblades ovate or elliptic, serrate; racemes rather crowded at end of stem, corolla pale blue, upper lip larger than the lower; spring and summer. See Small p. 1022, from whom this description is taken. Variety *australis*. Determination by C. V. Morton (Smith. Inst.)

Prunella vulgaris. Self-Heal, Heal-All.

Slender stem, simple, or sometimes branched; leaves ovate to oblong, 1 to 3 inches long; flowers violet to purple, 1 inch long; spikes terminal, dense, 1 1/2 to 2 inches long. Also called *Brunella*. House pl. 187.

SOLANACEAE. NIGHTSHADE FAMILY

Solanum nigrum. Nightshade, Black Nightshade.

An annual with erect branched stem, green, 1 to 2 1/2 feet high; leaves ovate, entire, 1 to 2 1/2 inches long; flowers white, in clusters; berries small, globular, black when ripe.

Solanum carolinense. Horse Nettle, Apple of Sodom.

Stem erect, branched, 1 to 3 feet high, beset with yellow prickles; leaves oblong or ovate, some deeply lobed, with midribs bearing sharp prickles, 3 to 5 inches long; flowers white and blue; berries orange-yellow, 1/2 inch in diameter. A pest.

Physalis virginiana. Ground Cherry, Virginia Ground Cherry.

Stem erect, branched, 1 to 2 1/2 feet high; leaves ovate or oblong and tapering, 1 1/2 to 2 inches long; flowers yellow; berry yellow or green, pulpy, inclosed by the 5-angled calyx. Type variable.

Datura stramonium. Jamestown-Weed (Jimson-Weed), Thorn-Apple.

Stem stout, smooth, branching, green, 1 to 3 or 4 feet high; leaves thin, more or less ovate, with deep lobes, acute at apex; flowers large, funnel-shaped, 5-pointed, white foetid, all summer; capsules 2 inches long, covered with prickles, poisonous, yielding the narcotic drug stramonium. House fig. XXVII.

Datura tatula. Purple Jamestown-Weed, Purple Thorn-Apple.

Similar to *D. stramonium*, but distinguished by its purple stem and lavender or violet or purple color in the flowers and by its larger size; likewise poisonous and ill-scented.

SCROPHULARIACEAE. FIGWORT FAMILY

Verbascum thapsus. Mullein (Mullen).

Stem wooly, rigid, simple (or with occasional branches), 2 to 6 feet high; leaves wooly, oblong, large (lowest 1 foot long); flowers yellow, sessile, on a long dense spike, in spring and summer. Introduced from Europe.

Verbascum blattaria. Moth Mullein (Mullen).

Stem erect, slender, 2 to 3 feet high, and smaller than that of the common mullein; leaves oblong, lanceolate; racemes long and loose, with yellow or white flowers. Naturalized from Europe. House pl. 195 B.

Linaria linaria. *Linaria vulgaris* (Miller, 1768). Toadflax, Butter and Eggs, Ramstead.

Stem 1-3 feet high, smooth, erect; leaves linear or lanceolate, numerous; flower yellow, spurred, 1 inch or more, in raceme, in May and June; By roadsides and in waste places. House pl. 196, Geog. p. 110.

Penstemon hirsutus, *Penstemon pubescens*. (Solander, 1789). Beard-Tongue, Penstemon.

Stem erect, 1 to 2 1/2 feet high; leaves opposite, lanceolate, pointed; flowers 5-parted, upper lip 2-lobed, lower lip 3-lobed, purple or violet, corolla one inch long, May, June, and July; In dry open sandy woods. House pl. 198, Geog. p. 115.

The older spelling *Pentstemon* shows better the origin and meaning of the word.

Leptandra virginica, *Veronica virginica* (Linnaeus, 1753). Culver's Root, Culver's Physic.

Herb with simple straight stem, 2 to 6 feet high; leaves whorled, lanceolate, serrate, pointed, 2 to 4 inches long; flowers clustered at top of stem in several racemes, white or bluish or purple, June to September; capsule ovate, many-seeded. Common. House pl. 200.

Gerardia setacea. Gerardia.

Stem 1 to 2 feet high, slender, much branched; leaves short, opposite, setaceous; flowers purple, showy; October; seeds numerous. In open sandy uplands.

Pedicularis canadensis. Wood Betony, Lousewort.

Perennial herb, more or less erect, 6 inches to 1 1/2 feet high; leaves pinnatifid; flowers large, variegated, red and yellow and purple, terminating stems; early spring. In dry woods. House pl. 205, Geog. p. 115.

RHAMNACEAE. BUCKTHORN FAMILY

Ceanothus americanus. New Jersey Tea, Red-Root.

Bushy shrub, 2 feet high, with red root; leaves ovate or ovate-lanceolate, finely serrate, 3-ribbed, 1 to 3 inches long; clusters of small white odorous flowers in May, June, and July. Common in the upper woods of the park.

Used as tea during the American Revolution.

BALSAMINACEAE. BALSAM FAMILY

Impatiens biflora. Jewel Weed, Touch-Me-Not, Balsam, Snapweed.

A branching annual, 2 to 4 1/2 feet high; leaves thin, ovate or oval, serrate, 2 to 3 inches long; flowers orange to yellow, in July; capsules 5-celled, bursting upon touch. Creek valley.

OROBANCHACEAE. BROOM-RAPE FAMILY

Epiphegus americana, *Leptamnium virginianum* (Rafinesque, 1878). Beech-Drops, Cancer-Root.

Stem with ascending straight branches, 6 to 12 inches tall; flowers small, purplish; in summer and autumn; parasitic on beech roots. Under beeches near the pump house.

ACANTHACEAE. ACANTHUS FAMILY

Ruellia ciliosa. Ruellia, Hairy Ruellia.

Stem simple, erect, 1 to 2 feet high; leaves hairy, oblong or oval, 1 to 2 inches long; pale blue flower on apex.

MARTYNIACEAE. UNICORN-PLANT FAMILY

Martynia louisiana, *Martynia proboscidea* (Gloxin 1785). Unicorn-Plant, Elephant's Trunk, Double Claw.

Herb, clammy, coarse, pubescent, scented, bunched; leaves broadly ovate, cordate at base, rounded at apex, almost entire, 4 to 8 inches in diameter, petiole long; flowers large, whitish with purple and yellow, in summer; fruit-pod strongly curved, 6 inches long, with claw or beak longer than the body, opening longitudinally and showing crested endocarp beneath. East of camp, near the new road.

BIGNONIACEAE. BIGNONIA FAMILY

Bignonia crucigera, *Bignonia capreolata* (Linnaeus, 1753). Cross-Vine.

A high-climbing woody vine, with stem showing a cross in transverse section; leaflets long, nearly evergreen; corolla bell-shaped, 2 to 2 1/2 inches deep, scarlet or orange-red without yellow within, with strong opium-like odor, April; capsule 6 to 8 inches long, containing flat-winged seed. Common.

Tecoma radicans, *Bignonia radicans* (Linnaeus, 1753). Trumpet Vine, Trumpet Creeper.

A woody climbing or prostrate vine; compound leaves, with 7 to 11 leaflets, deeply toothed; flaming red or scarlet trumpet-shaped flowers, 2 to 3 inches long, June; capsules 4 to 5 inches long, containing flat-winged seed. Common on Bear Creek.

Catalpa catalpa, *Catalpa bignonioides* (Walter, 1788). Catalpa, Bean-Tree.

A large spreading tree; leaves cordate, entire or three-lobed, 6 to 10 inches in diameter; flowers white, spotted with yellow and purple; pods a foot long, hanging, with many flat-winged seeds. Rare in the park

PLANTAGINACEAE. PLANTAIN FAMILY

Plantago major. Plantain.

Stemless herb with short rootstock; leaves basal, with long petioles, ovate or oval, 6 to 7 ribbed, generally entire, 4 to 6 inches long; scape 6 to 13 inches high, bearing densely flowered spike; flowers perfect, all summer; said to be naturalized from Europe; many seeded; common, often troublesome.

Plantago virginica. Plantain.

Leaves lanceolate or oblong, with short petioles, 3 to 5-veined, 2 to 5 inches long; scape and spike 6 inches tall; flowers dense, on spike, in spring and early summer.

Plantago aristata, *Plantago patagonica*, var. *aristata*, (Gray, 1856).
Bracted or Awned Plantain.

Herb, erect, 6 to 16 inches tall; stems and very narrow leaves from base; flowers in spikes, small, summer; seeds in spikes 2 to 3 inches long, bracted or awned. In dry upland ground.

Plantago lanceolata. Narrow-Leaf Plantain, Rib-Grass.

Leaves long, lanceolate, 3 to 5 parallel veins, hairy beneath, clustered on the ground; scape and spike 12 to 14 inches tall at flowering time; flowers dense, whitish, leaving green cone later with many seeds, June to September; introduced from Europe; in waste places. Geol. p. 193.

RUBIACEAE. MADDER FAMILY

Cephalanthus occidentalis. Button-Bush.

Shrub 4 to 15 feet high; leaves generally opposite, ovate pointed, petioled, 3 to 5 inches long; flowers densely clustered into a white global head one inch or more in diameter, June to August. In swamps and on banks of streams. House pl. 210, Geog. p. 159.

Mitchella repens. Partridge Berry.

Small creeping vine with ovate evergreen leaves one-half inch long; small white 4-parted flower in April, May, or June; small scarlet or red berry persistent throughout the winter. Dry shady woods, often at the base of a tree. A dainty plant. House pl. 211 B.

Houstonia minor, *Houstonia linnaei* var. *minor* (Michaux, 1803).

Small Bluet, Southern Bluet.

Three to 6 inches tall; flower blue or purple, terminal, single, 4-parted, February and March. In open land.

Similar to *Houstonia coerulea*.

Houstonia longifolia, *Houstonia purpurea* var. *longifolia* (Gray, 1868).

Long-Leafed Houstonia.

Perennial, stem erect, 8 to 12 inches high; stem-leaves linear or lanceolate, oblong, one-ribbed; flowers in cymes, pale blue or nearly white, 4-parted, small, April to August. Open areas. House pl. 194 B.

Houstonia coerulea, *Hedyotis coerulea* (Hock, 1833). Bluet.

Small delicate plant; stem erect, 3 to 6 inches high; flower solitary, 4-parted, blue (or white) with yellow center; early spring. In open ground. House pl. 209 B, Geog. p. 162.

CAPRIFOLIACEAE. HONEYSUCKLE FAMILY

Viburnum nudum. Viburnum.

Shrub or small tree, 8 to 12 feet high; leaves oval, entire, thick; flowers small, white, in terminal cymes, June and July; fruit round, blue in autumn. In low swampy thickets.

Viburnum rufotomentosum. (Southern) Black Haw.

Tree 10 to 25 feet high; leaves elliptical to oval, entire, finely serrate; cymes large, white; fruit oval, half-inch or longer, blue, purple, or black.

Does this really differ from *Viburnum prunifolium*, except possibly as a variety?

Sambucus canadensis. Elder.

Shrub 5 to 8 feet high, stem generally pithy; leaflets 5 to 11 (generally 7); flowers in broad white cymes; fruits numerous, purple to black. Very showy.

Lonicera sempervirens, *Caprifolium sempervirens* (Michaux, 1803).
Coral Honeysuckle, Trumpet Honeysuckle.

Climbing vine (evergreen in the South); leaves obtusely oval, perfoliate at top; flowers in tubes or trumpets, scarlet or yellow; berries scarlet to red.

Lonicera japonica. Japanese Honeysuckle.

Vine climbing and running to a distance; leaves ovate, entire, dull green; flowers vari-colored, white, pink, and yellow, very fragrant, especially in the evening. Introduced from Japan.

VALERIANACEAE. VALERIAN FAMILY

Valerianella radiata, *Fedia radiata* (Michaux, 1803). Lamb Salad.

Small herb, 6 to 12 inches high, forking by twos, leaves opposite, small; corolla white, funnel-form, in spring.

CAMPANULACEAE. BLUE-BELL FAMILY

Specularia biflora, *Legouzia biflora* (Britton, 1894). Venus' Looking-Glass.

Stems slender, sometimes branched. 6 to 18 inches high; leaves alternate, ovate, generally acute at apex, sessile; flowers blue or purplish, in spring, two-flowered.

Specularia perfoliata, *Legouzia perfoliata* (Britton 1894). Venus' Looking-Glass.

Stem slender, leafy, hairy, 5 to 20 inches high; leaves clasping the stem, as broad as long; flowers small, in the axils, blue (or violet). House pl. 219 G.

Lobelia cardinalis. Cardinal Flower. Lobelia.

Stem leafy, generally simple, 2 to 4 feet high; leaves oblong or lanceolate, thin, 2 to 6 inches long; flowers in racemes, crimson, bright scarlet, or red, July to September. Common. House pl. 220.

Lobelia puberula. Downy Lobelia.

Stem 1-2 feet high; leaves thickish, lanceolate, 2 inches long; corolla, bright blue. August-October. In low moist ground.

CICHORIACEAE. CHICORY FAMILY

Taraxacum taraxacum, *Leontodon taraxacum* (Linnaeus, 1753). *Taraxacum dens-leonis* (Desfontaine, 1800). Dandelion, Blow-Ball, Lion's Tooth.

Root thick, long, bitter, stemless; scape erect, hollow, 3 to 15 inches long, ending in a single yellow flower; leaves radial, oblong, lanceolate, deeply dentate; flowers many, golden yellow, composite. April to September; copious soft white pappus.

Lactuca canadensis, *Lactuca elongata*. (Muhl, 1804). Wild Lettuce.

Stem erect, 3 to 9 feet high, leafy to the flowers; leaves 7 to 8 inches long or longer, lyrate or pinnatifid, the upper ones frequently entire and lanceolate; flowers numerous, small in panicles, yellow; pappus white; July to September; produces milk upon breaking; Margins of fields, open places; a common weed, tall but not handsome, with considerable variety in the leaves. Br. & Br. fig. 3539. Compare *Mulgedium*.

Prenanthes serpentaria, *Nabalus serpentarius* (Pursh, Hook, 1833). Gall-of-the-Earth.

An herb with stem 1 to 4 feet high, leafy, branched; leaves variable, sometimes deltoid; flowers white or cream-colored or purplish, pappus straw-colored or brownish, drooping heads in clusters, August-September. In dry open woods. Cf. *Nabalus trifoliatus*. House pl. 226.

Adopogon virginicum, *Tragopogon virginicum* (Linnaeus, 1753). False Dandelion, Virginia Dwarf Dandelion.

Perennial, stem erect, small, with one small upper leaf, 1 to 1 1/2 feet high; basal leaves thin, tufted, entire or slightly sinuate, 2 to 6 inches long; flowers orange, on end of branches, few in spring; pappus.

Adopogon carolinianum, *Hyoseris virginica* (Linnaeus, 1753). False Dandelion, Carolina Dwarf Dandelion.

Annual, stem erect, 1 foot high, with solitary flower; leaves basal, variable (lanceolate, spatulate, sinuate, dentate, lobed), 1 to 6 inches long; flowers orange, in spring and summer; pappus.

This genus is also called *Krigia*.

AMBROSIACEAE. RAGWEED FAMILY

Ambrosia artemisiaefolia. Ragweed, Roman Ragweed.

Weed 1 to 3 feet high, hairy or roughish, branched; leaves twice-pinnatifid, 2 to 4 inches long; flowers in racemes or spikes.

Ambrosia trifida. Great Ragweed, Giant Ragweed, Tall Ragweed.

Tall coarse weed, 3 to 12 feet high, branched; leaves large, opposite, 3 to 5-lobed, serrate; fruit clustered. Geog. p. 201.

The pollen of both these species is irritating to many people.

Xanthium canadense. Cocklebur.

A rough stout weed, branching, 1 to 5 feet high; leaves coarse, alternate, 3-veined, 3-lobed, dentate, 3 to 4 inches long; bur oblong, nearly an inch long, covered with spines or prickles. A troublesome weed.

COMPOSITAE. COMPOSITE FAMILY

Vernonia gigantea, *Vernonia altissima* (Nuttall, 1818). Iron-Weed.

A tall erect weed branching above, 5 to 9 feet high; leaves alternate, thin, lanceolate, pointed, serrate; flowers clustered in scattered corymbs, purple, July to September.

Vernonia fasciculata. Iron-Weed, Western Iron-Weed.

Stem slender, smooth, 3 to 6 feet high; leaves alternate, linear, narrowly lanceolate, sharply pointed, serrate; flowers clustered, pale-purple, July to September.

Elephantopus carolinianus. Elephant's Foot.

Stem hairy, branched, 1 to 2 feet high; leaves thin, oblong, hairy, crenate or dentate, 3 to 6 inches long; flowers terminal, purple, July and August.

Elephantopus tomentosus. Hoary Elephant's Foot.

Stem erect, pubescent or hairy, branching near the top, 1 to 2 feet high; basal leaves ovate, oval, or obovate (more nearly round than in *E. carolinianus*), crenate or dentate; few stem leaves, much smaller, lanceolate; flowers small, terminal, pale purple, June to August.

Erigeron ramosus, *Erigeron strigosus*. Daisy Fleabane.

Two to 4 feet high; leaves entire, lower ones oblong or spatulate and generally serrate, upper-ones linear or oblong; flowers white, all summer. In fields, pastures and open places.

Erigeron philadelphicus. Philadelphia Fleabane (sometimes called Common Fleabane or Daisy Fleabane).

Stem slender, erect, 2 to 3 feet high; leaves variable, lower ones dentate, upper ones small and often clasping; heads several, rays 100 to 150, rose-purple, May to August. In fields and Woods. House pl. 239 B.

Erigeron canadensis, *Leptilon canadense* (L 1753). Canada Fleabane, Horseweed.

A common weed, stem 1 to 6 feet high, erect, much branched; upper leaves linear or spatulate near the base; ray flowers white, pappus, all summer. In waste places.

Laciniaria squarrosa, *Liatris squarrosa* (Wild, 1804). Blazing-Star (Colic Root).

Stem erect, 1 to 3 feet high, single; leaves narrow, linear, grass-like; flowers individual, purple, about 1 inch long, July to September. In dry open woods or fields. Br. & Br. fig. 3636.

There are probably other species of Blazing-Star in the park.

Eupatorium perfoliatum. Boneset, Thoroughwort.

Stem stout, branched near the top, 2 to 4 feet high; leaves opposite, lanceolate, pointed, serrate, perfoliate, 4 to 7 or 8 inches long; flowers white, in large clusters, autumn; used in popular medicine.

Eupatorium purpureum, *Eupatorium trifoliatum* (Linnaeus, 1753). Joe Pye Weed.

Tall showy weed, branching at top, 3 to 10 feet high; leaves whorled, ovate, lanceolate, serrate, 4 to 7 inches long; flowers clustered in a large pyramidal head, pale purple to pink, in August and September. Common. House pl. 228.

Eupatorium rotundifolium. False Horehound, Round-Leaved Thoroughwort.

Pubescent stem, simple or branching at top, 1 to 2 1/2 feet high; leaves opposite, sessile, ovate or nearly round, crenate, rough, 1 to 1 1/2 inches long, 3-ribbed; flowers white, in a large cluster. August and September. Common. In dry soil.

Kuhnia glutinosa, *Kuhnia suaveolens* (Frescn. 1838). Prairie False Boneset.

Herb, 1 to 4 feet high, branched, pubescent; leaves sessile, lanceolate to linear-lanceolate; heads numerous, densely clustered, pappus brown or tawny, August to October. In dry soil.

Ageratum conyzoides, *Ageratum mexicanum* (Sims, 1787). Ageratum. Mexican Ageratum.

Herb, 1 to 2 1/2 feet high, often branched; leaves ovate, opposite, serrate; flowers azure-blue, in heads, in summer and fall. Escaped from cultivation.

Solidago odora. Sweet Golden-Rod.

Stem simple, erect, 2 to 4 feet high; leaves alternate, sessile, thick, entire, lanceolate, pointed, sweet-scented (anise-scented); flowers terminal in spreading racemes.

Solidago canadensis. Canada Golden-Rod, Yellow-Weed.

Stem slender, pubescent or rough, 3 to 8 feet high; leaves lanceolate with pointed apex, serrate, 2 to 5 inches long, branching into a large spreading panicle of yellow flowers, August to October. Very showy. House pl. 238.

Solidago caesia. Blue-stemmed Goldenrod.

Stem 2 to 3 feet, sometimes purple, erect, slender, terete, branched; leaves lanceolate, pointed sessile, finely serrate, small heads in small clusters on the branches; rays yellow. In rich shady woods House pl. 235 A.

Solidago bicolor. White Goldenrod, Silver Rod.

Stem erect, 1 to 3 feet high, generally simple, sometimes branching; leaves alternate, oblong, elliptical, or lanceolate, lower leaves larger than the upper; flowers creamy or nearly white, pappus; in panicles. In dry open woods. House pl. 237 A.

The golden-rods constitute a large genus, and there are at least half a dozen species in the park.

Aster paludosus. Swamp Aster.

Stem somewhat rough, slender, generally simple, 1 1/2 to 2 feet high; leaves very narrow (almost linear), rough, 2 to 6 inches long; flowers few, near the top, purple in autumn. Despite the generic name this plant is not confined to swamps.

Aster patens. Spreading Aster, Purple Aster.

Stem pubescent, 1 to 3 feet high, with spreading branches; stem-leaves clasping, 1 to 2 inches, rays 20 to 30, blue or purple-violet, August to October. In open fields. House pl. 242 A.

Aster concolor. Silky Aster.

Stem slender, generally simple, 1 to 3 feet high; leaves sessile, oblong or lanceolate, 1 to 2 inches long, silky or silvery; rays 10 to 15, violet-purple, late fall. In dry soil.

Aster dumosus coridifolius (Michx. T & G 1841), *Aster dumosus* (L., 1753). Bushy Aster.

Stem 1 to 3 feet high, much branched; leaves small, entire, branch leaves, numerous; flowers with white rays, pappus white. Mohr calls the variety Many Leaved Bushy Aster.

Aster lateriflorus, *Aster diffusus* (Ait. 1789), *Solidago lateriflora* (L. 1753).

Starved Aster, Calico Aster. Stem slender, branched, 2 to 4 feet high; stem leaves 2 to 4 inches long, lanceolate, branch leaves smaller; heads large, clustered, often unilateral; rays short, white, or light purple; pappus white; various forms. Fall. House pl. 246.

House pictures nine plants of the genus aster; pl. 240 to 246 B.

Rudbeckia hirta. Black-Eyed Susan, Ox-Eye Daisy, Nigger-Head, Cone-Flower.

Stem rigid, simple or sparingly branched, hairy, 1 to 2 1/2 feet high; leaves undivided, lanceolate, 2 to 6 inches long, slightly serrate; composite flowers with orange or yellow rays and purplish black disks, throughout the summer. House pl. 254.

Antennaria plantaginifolia, *Gnaphalium plantaginifolium* (Linnaeus, 1753). Everlasting, Cudweed.

Small wooly plant, stoloniferous; stem 6 to 14 inches high; basal leaves obovate or spatulate, 3-ribbed, dark green above, silvery below, 1 to 2 inches long, stem-leaves small, narrow; heads small.

Gnaphalium obtusifolium, *Gnaphalium polycephalum* (Michaux, 1803). Sweet Everlasting, Life Everlasting, Sweet Balsam.

Stem erect, branched, 1 to 3 feet high; leaves linear or lanceolate, sessile; flowers white, in large clusters, woolly, odorous, July to October.

Helianthus angustifolius. Narrow-leaved Sunflower.

Stem 2 to 6 feet high, slender, branched above; leaves linear or almost so, revolute, 2-6 inches long, one-veined; flower composite, solitary at top of stem or branches, rays bright yellow, 13 or more; disk brownish or purple; September-October. Common. House, pl. 249A. Dormon, p. 151.

Helianthus giganteus. Giant Sunflower, Tall Sunflower.

Stem 5 to 12 feet high, often purplish, blue, branched, scabrous; leaves 5 to 7 inches long, lanceolate, serrate, very pointed, rough; flowers on end of branches, diameter 3 1/2 inches; disk yellowish brown, rays often as many as 21; September-October. On low ground. House, pl. 256.

Helianthus divaricatus, *Helianthus truncatus* (Schwein, 1824).

Woodland Sunflower, Rough Sunflower. Herb from slender rootstock; stem 2 to 5 feet high, slender, simple or divided; leaves divaricate, opposite, rough, ovate-lanceolate, pointed, sharp, 3 to 6 inches long; flowers yellow, rays 8-12; August-October. Dry open woods. House, pl. 257.

The cultivated sunflower of gardens is usually from *Helianthus annuus* and may reach 15 or 20 feet in height and be branched similar to a small tree. The seeds are food for birds and poultry; the leaves are broad and ovate.

The genus *Helianthus* belongs to the composite family and is a large one; Small gives 44 species for the south-eastern states.

Coreopsis major, *Coreopsis senifolia* (Michaux, 1803). Wood Coreopsis. Tickseed.

Stem pubescent, leafy to the top, 1 to 3 feet high; leaves sessile, divided to the base into threes, the two thus seeming to be a whorl of six leaves; flowers yellow, July and August; akenes oblong. Common.

Coreopsis auriculata. Lobed Tickseed, Meadow Coreopsis.

Stem 1 to 4 feet high, slender and weak, generally hirsute or glabrous; leaves thin, mostly petioled and entire, some with lobes near base; flowers deep yellow, June-September. In rich woods and banks.

Coreopsis tripteris. Tall Coreopsis.

Stem simple, smooth, branched above, 4 to 8 feet high; leaves of lanceolate leaflets; flowers yellow, August-September. In rich woods and fields.

Achillea millefolium. Yarrow, Milfoil.

Perennial herb, one foot high or higher; basal leaves alternate, twice-pinnatifid, with feathery appearance; flowers white, sometimes pink in broad terminal corymbs. House, pl. 260 B.

Anthemis cotula, *Maruta cotula*. (D. C., 1837). Dog Fennel, Mayweed, Dog's Camomile.

Weed 1 to 2 feet high, with foul smell, leaves 3-pinnate divided, linear; flowers with heads terminal, solitary, rays white, disk yellow; April to June; waste places, roadsides; introduced. Whitehouse, p. 185.

Not to be confused with *Helenium tenuifolium*, bitterweed, which has all the flowers yellow.

Helenium tenuifolium. Bitter-Weed, Sneeze-Weed.

A troublesome pasture weed, slender, very leafy, branching, 1 to 2 feet high; leaves linear or filiform; flowers yellow, in clusters at top of plants. August and September.

Bidens bipinnata. Spanish Needles.

Stem erect, quadrangular, branched, 1 to 3 feet high; leaves thin, petioled, pointed, deeply dissected; flowers small, yellow; seeds slender; akenes with barbed awns.

Bidens frondosa. Stick-Tight, Beggar-Ticks.

Stem erect, branched, 2 to 6 feet high; leaves thin, pinnately divided below, entire above, serrate, akenes flat with 2 slender awns.

Senecio lobatus, *Senecio lyratus* (Michx, 1803). Butterweed, Ragwort (Groundsel).

Herb, stem hollow, 1 to 3 feet high; leaves lyrate, 2 to 10 inches long; flowers yellow, rays 6 to 12; pappus white, April to August; In swampy land.

Compare *Senecio aureus* in House, pl. 263.

Cacalia atriplicifolia, *Senecio atriplicifolius* (Hook, 1833), *Mesadenia atriplicifolia* (Raf., 1836). Pale Indian Plantain, Wild Caraway.

Stem 3 to 6 feet high, erect, terete; leaves lower palmately-veined, thin, pale, more or less triangular, 4 to 5 inches long, base cordate, long-petioled, deep-toothed, upper leaves much smaller, irregular; flowers mostly white, in corymbs, late summer. In woods.

Carduus altissimus. Tall Thistle. Roadside Thistle.

Stem branched, downy, 3 to 9 feet high; leaves alternate, sessile, lanceolate, lower 5 to 8 inches long, less dentate, white on under side, upper leaves smaller with many prickles, more dentate, white beneath; flowers purple, in prickly heads, 1 1/2 to 2 inches high, in August and September.

Carduus discolor. Field Thistle. Two-colored Thistle.

Stem leafy and branching, 2-6 feet high, leaves alternate, deep-cut, spiny, green above and white below; similar to the tall thistle, but lower; called by Gray (6th ed.) and Chapman (3rd ed.) a variety rather than a species.

The generic names *Cirsium* and *Cnicus* are also used for *Carduus*.

Gaillardia lanceolata. Gaillardia.

Small branching herb, 1 to 2 feet high; leaves narrow, lanceolate, sessile, often spatulate; flowers composite, solitary on terminal peduncles, 1 1/2 to 2 inches in diameter, sweet-scented, rays yellow, disks generally purple or brown; very pretty.

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