

Common

FOREST TREES

of

WEST VIRGINIA

HOW TO KNOW THEM

CONSERVATION COMMISSION OF

WEST VIRGINIA

1951
Fourth Edition

FOREWORD

Trees are a part of our everyday life; so much so that we have become accustomed to taking them for granted. Too often, we overlook their beauty, their value and interesting personalities. Each tree has its own traits and characteristics peculiar to the species. Close observation will reveal that the buds, the leaves, the fruit, the wood and general form of every single species differ in appearance.

Close observation instead of a passing glance is the key to tree identification. This manual endeavors to present in simple non-technical terms a description of the common forest trees of the state. It is not intended for the advanced student of plant life, but rather for the average individual whose curiosity about trees has been aroused. How many of us have missed the fun of being able to identify those few trees in our own back yards?

To know trees is to enjoy them, and to know them actually involves but little effort.

The primary purpose of this publication is to serve as a guide for beginners in identifying the native trees of West Virginia.

For the amateur botanist, the leaves of trees are the most reliable means of distinguishing one kind of tree from another. They remain on the tree longer than the flowers (which also are a good means of identification) and they are more nearly the same in appearance on all trees of the same species than are some other characteristics such as twigs, bark, fruit, etc. To rely entirely on the leaves for identification, though, puts the student at disadvantage in the wintertime, when most trees in West Virginia are without leaves. For this reason, it is a good idea for the beginner to note other features such as bark, leaf arrangement, form, fruit, flowers, buds, etc., after he has acquainted himself with a tree through its leaves.

ACKNOWLEDGMENTS

In its preparation of the text of this, the fourth revised edition of "Common Trees of West Virginia," the Education Division of the Conservation Commission of West Virginia used much of the material which appeared in the original and in subsequently revised editions. Some new material, including one drawing, was added. All old material was carefully checked to bring it up to date in data and nomenclature.

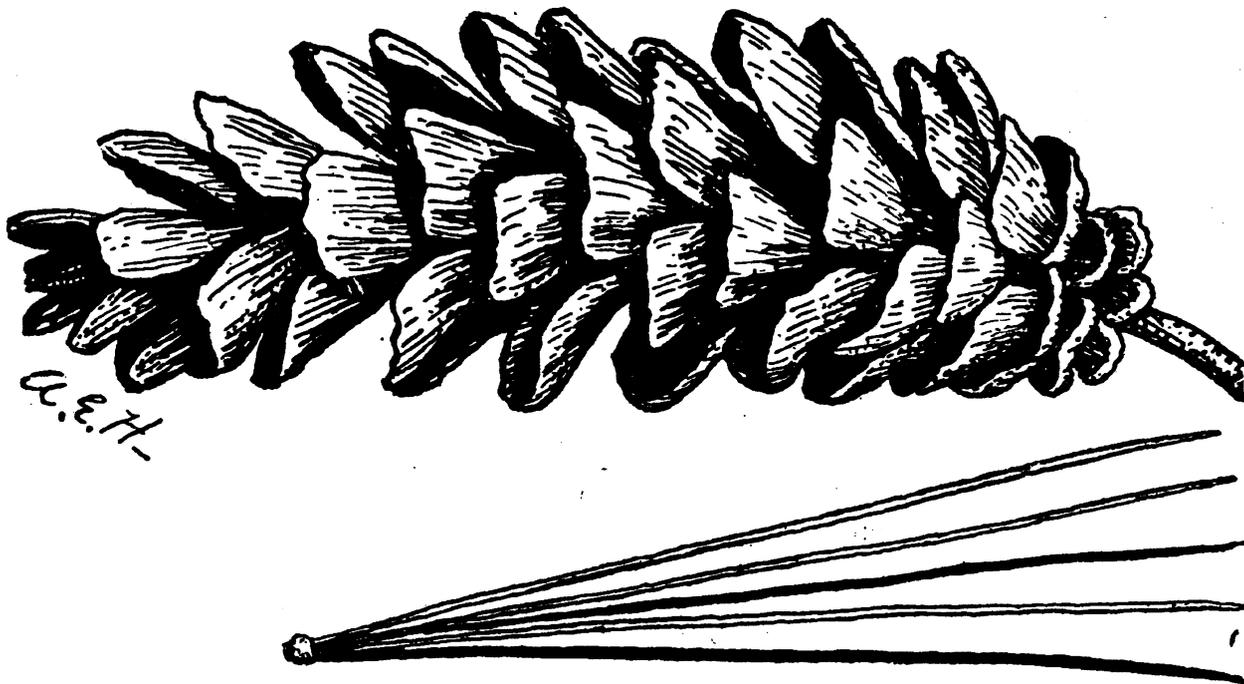
Among those whose valuable assistance in this work is acknowledged are Dr. Earl Core, head of the Biology Department, West Virginia University, and former State Forester Wilson B. Sayers. Acknowledgment also is extended to I. H. Sims, Chief Division of Forest Management, U. S. Department of Agriculture, Forest Service, whose technical advice was of great help; to Asher W. Kelley, Jr., Assistant State Forester, for aid in checking proofs and to Prof. C. S. Sargent, whose "Manual of Forest Trees of North America" was used, with permission of Houghton-Mifflin Co., as the basis of botanical authority in the third edition.

All except one of the drawings were supplied by the U. S. Forest Service through Mr. W. T. Mattoon, for the use of which the Editors are very grateful.

EASTERN WHITE PINE

(Pinus strobus L.)

The white pine is a large timber tree, attaining a height of 60 to 100 feet and a diameter of 2 to 4 feet. Its trunk, when in close stands, is long, straight, and free from limbs. Its regular pyramidal shape and soft gray-green foliage make it a beautiful ornamental tree. Its rapid growth and hardiness and high quality of the wood make it one of the most desirable of our forest trees.



WHITE PINE

The branches extend horizontally, arranged in whorls. These whorls or circles of branches mark the successive years of upward growth. The bark on young branches is smooth, green, often with a red tinge, but thick, deeply furrowed and grayish-brown on older trees.

The needles, are arranged in clusters of five, which distinguish it from all other Eastern pines. The needles are 3 to 5 inches in length, bluish-green on the upper surface and whitish beneath. The cone, or fruit, is 4 to 6 inches long, cylindrical and drooping. The cone contains small, winged seeds which mature after two summers. Two seeds are found under each cone scale.

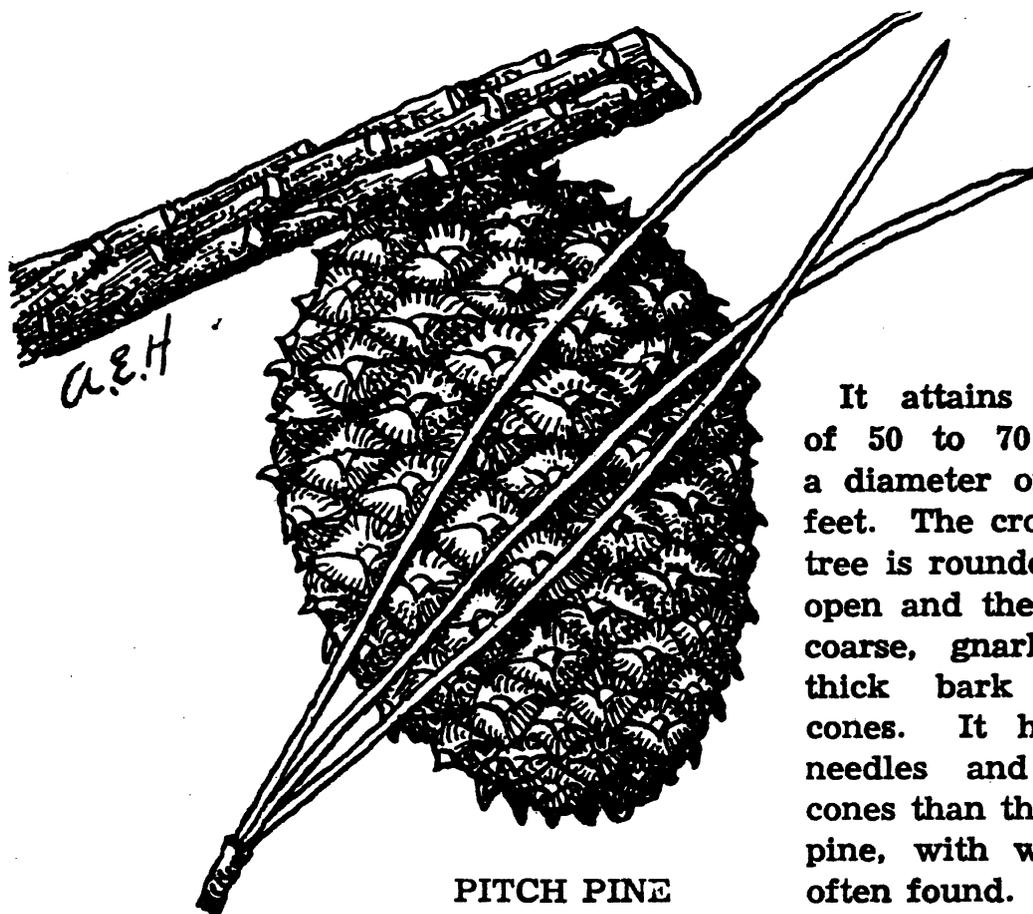
The wood is soft, light, rather weak, straight grained, light brown in color and easily worked. It is not durable in contact with the ground but the lumber is in large demand for construction purposes, box boards, matches and many other products.

Distribution in West Virginia: Originally in three main centers: Pocahontas and Greenbrier Counties, Raleigh County, Tucker County. Scattered in all counties east of the Alleghenies and occasionally found in the hilly counties of the west and south.

PITCH PINE

(*Pinus rigida* Mill.)

The pitch pine is usually found on the dry sandy soil of hillsides and ridges. It is sometimes found in cool swamps and outlying hilly regions. It occurs in groups with hard woods or other pines and is sometimes found in small pure stands.



It attains a height of 50 to 70 feet and a diameter of 1 to 2½ feet. The crown of the tree is rounded, usually open and the limbs are coarse, gnarled with thick bark and old cones. It has longer needles and larger cones than the shortleaf pine, with which it is often found.

The needles are arranged in clusters of three, and are 3 to 5 inches long, stiff, rigid, somewhat twisted and often standing at right angles with the branches. They are dark yellow-green. The cones are 1 to 3 inches long and armed with stiff prickles. They sometimes cling to the branches for ten years.

The bark is rough, dark gray or reddish-brown and divided irregularly into broad, flat, continuous ridges.

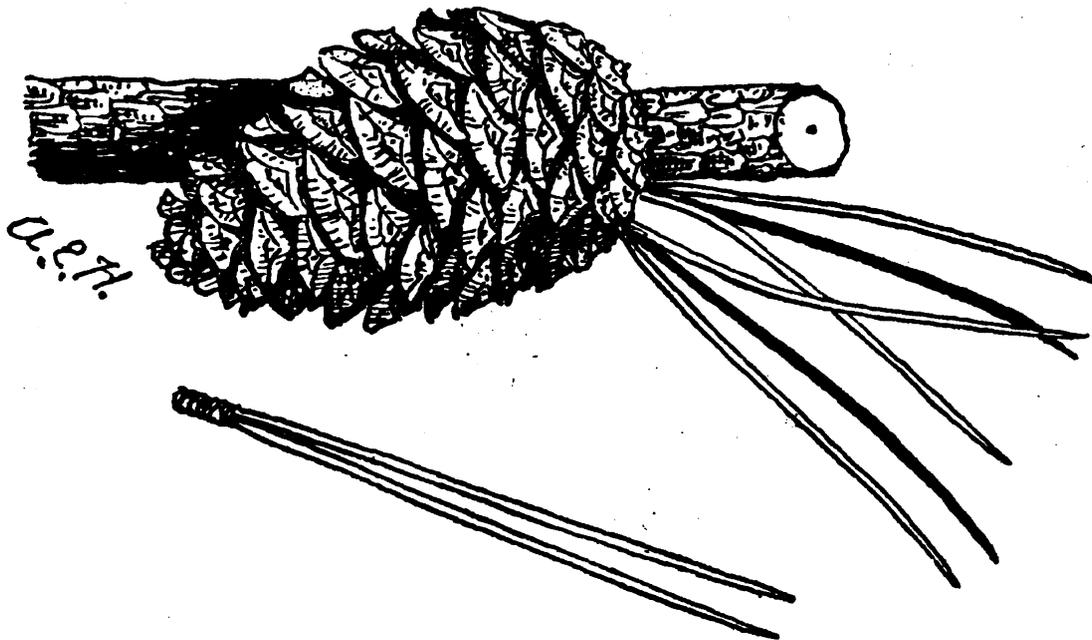
The wood is light, soft and brittle. It is sawed into lumber for construction purposes and is used for mine props, boxes and crates. This tree is able to grow on very poor soil and is the most fire resistant of our pines. It has the ability to sprout after being injured by fire.

Distribution in West Virginia: It is most common east of the Allegheny mountains but grows locally in Boone, Braxton, Berkeley, Clay, Doddridge, Fayette, Gilmer, Greenbrier, Grant, Hampshire, Hardy, Jefferson, Kanawha, Logan, Mercer, Monroe, Mingo, Nicholas, Preston, Pocahontas, Randolph, Roane, Summers, Tyler and Wayne Counties. Uncommon in McDowell, Wyoming and Webster counties.

SHORTLEAF PINE

(*Pinus echinata* Mill.)

The shortleaf pine, also known as yellow pine and old field pine, is usually found with hardwoods and other pines on clay or gravelly soil, on hills or stony slopes. When mature, the tree has a tall, straight stem and an oval crown. It reaches a height of from 80 to 100 feet and a diameter of from 2 to 3½ feet. The young tree, when cut or burned, often reproduces itself by sprouting.



SHORTLEAF PINE

The needles are arranged in clusters of two and three, but more often in twos. They are 3 and sometimes 5 inches long, slender, flexible, and dark blue-green. The cones are 1½ to 2½ inches in length, oblong, with small prickles. The cones often hold the twigs for three or four years.

The bark on the trunk of older trees is broken into large, more or less rectangular plates, and is brownish-red.

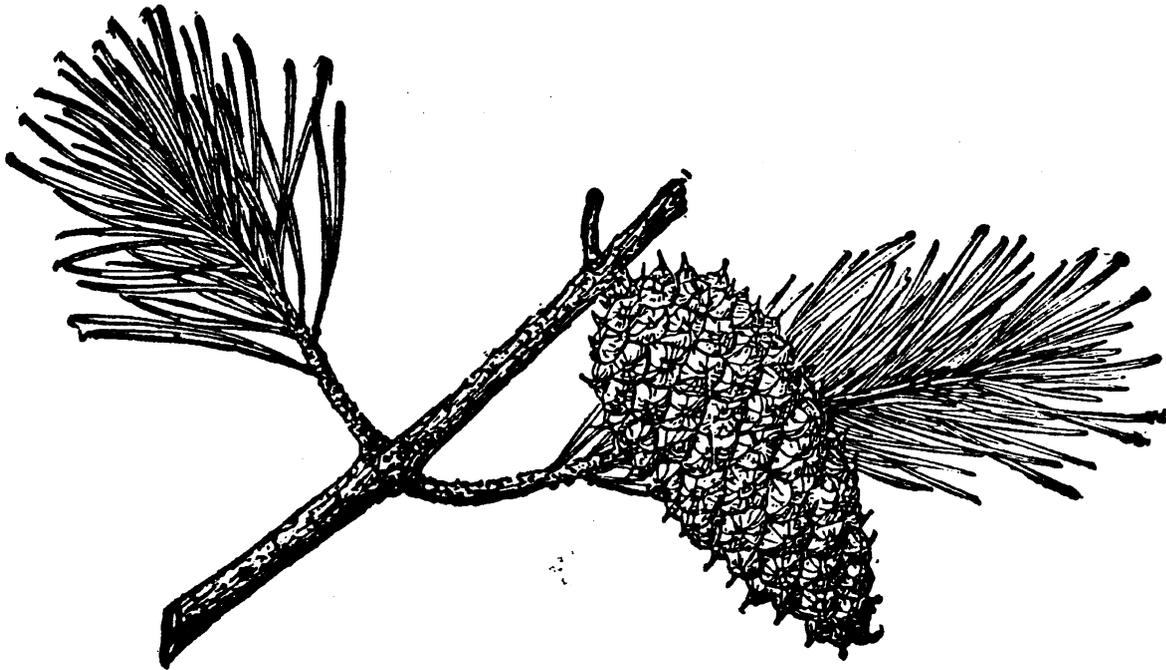
The wood of old trees is hard, heavy, coarse-grained and yellowish. It is used largely for interior and exterior finishes, veneer, general construction, paper pulp, excelsior, mine props and other purposes. The shortleaf pine can be distinguished by its clusters of two or three leaves and its small cones.

Distribution in West Virginia: Distributed locally in the counties directly east of the Ohio River and along both sides of the Allegheny Mountains, but it is far more common on the eastern side.

VIRGINIA PINE

(*Pinus virginiana* Mill.)

The scrub pine is known by a variety of common names. It is sometimes called Jersey pine, Virginia pine, bull pine and other names. It occurs often in pure stands in old fields and is persistent in dry soils. It grows rapidly while young, but seldom reaches large timber size. It is relatively short limbed. The branches usually persist for many years, even after dying, thus giving a scrubby appearance to the tree which is responsible for one of its common names. It averages 30 to 40 feet high and is 1 to 1¼ feet in diameter.



VIRGINIA PINE

The needles are arranged two in a cluster and they vary from 1½ to 3 inches in length, are twisted, rather stout, sharp pointed and gray green in color. The needles are shorter than those of any other pine in the state.

The cone or fruit is about two inches in length, narrow and has small prickles. Cones are produced almost every year and they persist on the branches from 3 to 5 years. A tree top with many dry open cones is quite characteristic of the species.

The bark is very thin with shallow fissures, and is reddish-brown in color.

The wood is light, soft, brittle and pale orange in color. It is very knotty because of the persistence of the side branches. The lumber is used for rough construction but warps easily. It is of little value as a timber tree. This species is most easily confused with shortleaf pine but can always be distinguished by its two-leaf clusters, small prickly cones and comparatively small bark plates.

...**Distribution in West Virginia:** Common throughout the state, and especially east of the mountains.

TABLE-MOUNTAIN PINE

(*Pinus pungens* Lambert)

The table mountain pine is a rather small tree, 20 to 50 feet in height that attains a diameter of 1 to 2 feet. This tree is most easily distinguished from the other pines of the state by the large prickly cones and by the bundles of two stiff, short needles. Table mountain pine prefers dry gravelly slopes and ridges.

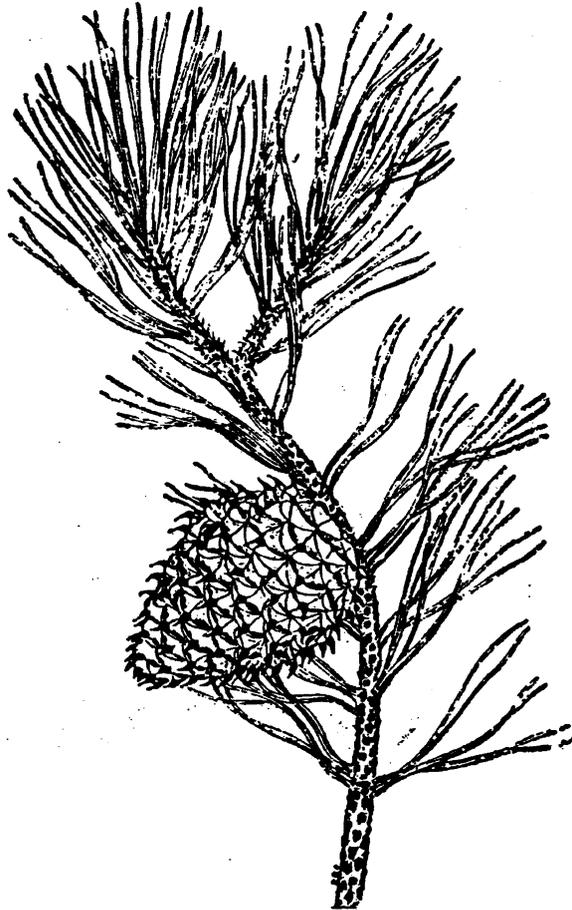


TABLE-MOUNTAIN PINE

The bark is broken on the trunk by fissures into irregular plates with loose red-brown scales.

The needles are arranged in clusters of two usually twisted, sharp-pointed, 2 to 4 inches long and are blue-green. The needles often persist for two or three years. The male flowers are in long loose clusters on the old twig, and the female flower are whorls of from 2 to 7 on the same growth.

The cones are very heavy and massive. They are 2 to 3 inches long with stout, curved, prickles and occur in close groups around the twigs. The cones often when ripe shed their seeds gradually, but the empty cones remain on the trees for many years.

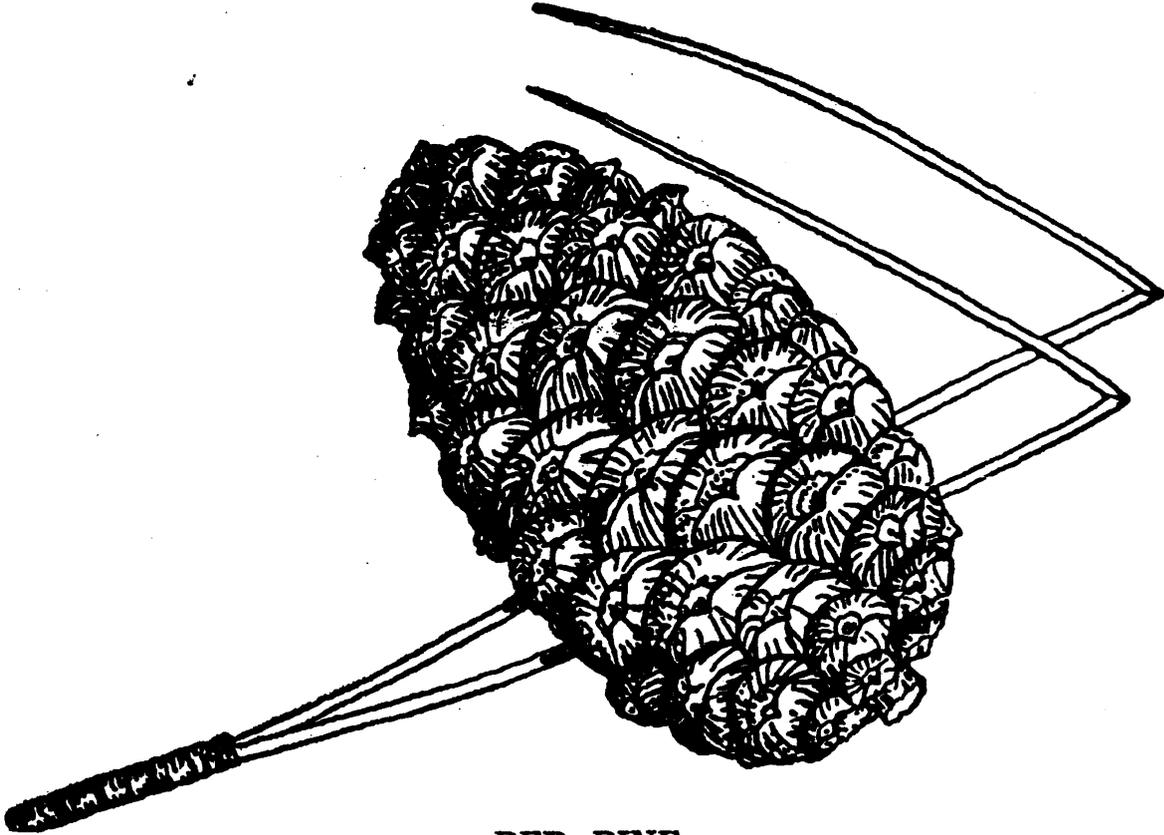
The wood is light, soft, brittle, coarse-grained, resinous and brown with a yellowish sapwood. It is not strong. This tree is not valuable for lumber and is used chiefly for fuel and charcoal.

Distribution in West Virginia: Found in the Allegheny Mountains and their eastern foothills, usually growing on cliffs.

RED PINE

(*Pinus resinosa* Ait.)

The red, or Norway pine is of importance in West Virginia chiefly because of its increasing popularity for planting. Its freedom from disease and insect attacks has recommended it to take the place of white pine in locations where wild currants are common. Shoot moth damage is severe except in cold climates. It is being planted quite extensively for ornamental purposes in the northern panhandle of the state. The red pine sometimes reaches a height of 100 feet and a diameter of 3 feet. Its rate of growth is about the same as that of white pine. The bark as the tree matures, becomes divided into large reddish-brown plates which give the tree its characteristic appearance and one of its common names.



RED PINE

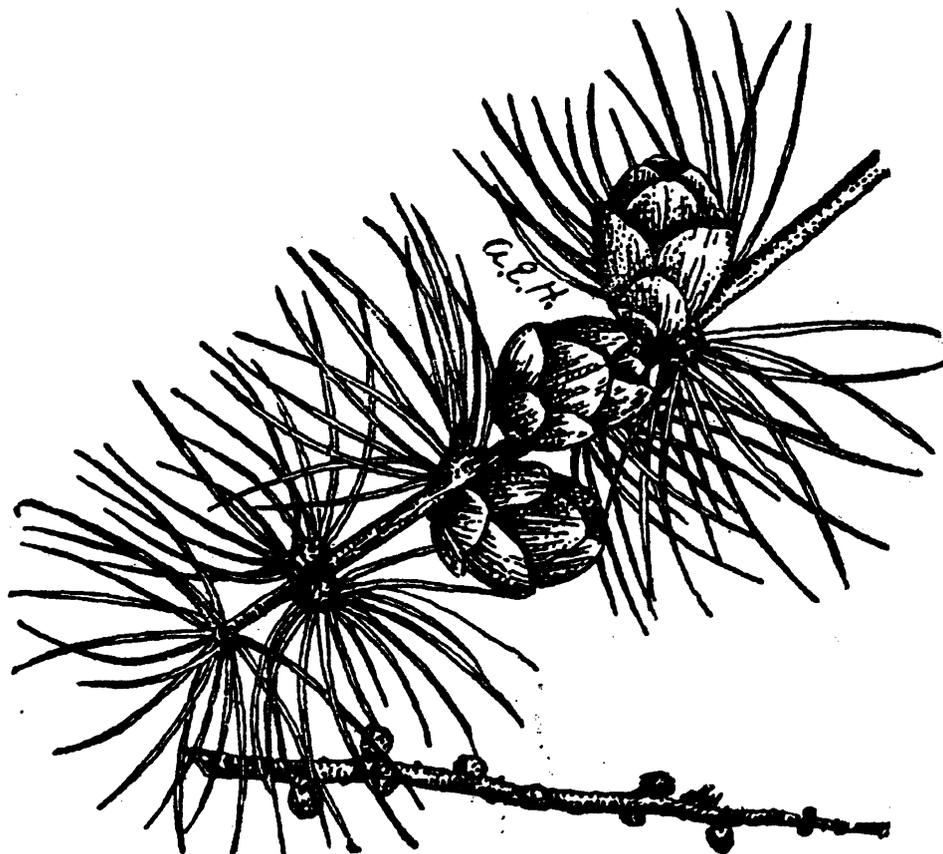
The needles which occur in clusters of 2, are about 4 to 6 inches long. They are less stiff than those of the pitch pine and are dark-green in color. This pine is sometimes confused with Austrian pine, whose needles are very much stiffer. The cone is about 2 inches long and light brown in color, fading to gray. The thick, slightly concave cone-scales are without prickles. Two years are required for the cones to ripen and then generally persist on the branches until the following summer.

The wood is medium heavy, hard and pale red. The lumber is coarser grained than that of the white pine and is used for general construction purposes.

Distribution in West Virginia: As yet found only near the summit of North Fork Mountain in Pendleton county and on South Branch Mountain in Hardy county.

TAMARACK; EASTERN LARCH
(*Larix laricina* (Du Roi) K. Koch)

The tamarack or American larch is a beautiful ornamental tree, usually becoming 30 to 60 feet high, and from 1 to 3 feet in diameter when mature. The trunk is straight and tapering and has numerous slender, upward-curving, branches. Tamarack is the only native conifer in the State or cone-bearer with deciduous leaves; that is, the needles of this tree fall in early winter as do the leaves of the hardwoods. The characteristic, in winter, often gives the tree the appearance of a dead hemlock or spruce.



LARCH OR TAMARACK

The needles are scattered singly or clustered in dense bundles on short lateral twigs. They are triangular in cross section, from $\frac{3}{4}$ to $1\frac{1}{4}$ inches in length and are light green in color.

The cones are about $\frac{1}{2}$ inch long with a few light-brown rounded scales. They have no prickles and mature during the fall of the first season.

The bark is thin and roughened with small rounded, red-brown scales. The wood is heavy, hard, slightly resinous and very strong and durable in the soil. It is light brown in color. This tree prefers swamps and lake borders.

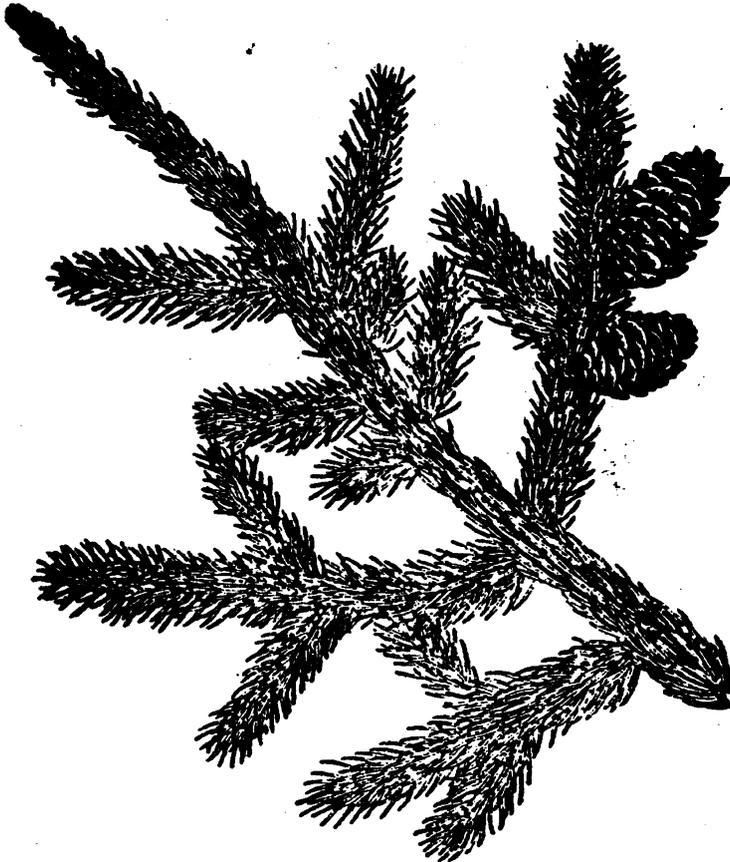
Distribution in West Virginia: A few trees found near Cranesville, Preston county.

RED SPRUCE

(*Picea rubens* Sarg.)

The red spruce is found on the summits and upper slopes of our highest mountains. It grows on well-drained but moist, rocky soil, at elevations from 2800 to 4800 feet. This species is the only native spruce in West Virginia. The red spruce was originally one of our principal lumber trees. Norway spruce, which has been planted extensively throughout the United States for ornamental purposes, resembles the red spruce but has much larger cones.

The red spruce attains a height of 70 to 120 feet with a diameter of 2 to 3 feet. The trunk is straight, continuous, free from limbs to a considerable height when in close stands and the crown is distinctly conical. The branches are somewhat drooping below, horizontal, or ascending above, and are very persistent.



RED SPRUCE

The needles are four-sided, about $\frac{1}{2}$ inch long, sharp-pointed, dark yellow-green and glossy. They are crowded and diverge from all sides of the twigs. The flowers are of two kinds on the same tree and mature in one season. The cones, or fruit, are 1 to 2 inches long and the scales of the cones are reddish-brown with smooth margins. The cones of the spruce hang downward in direct contrast to the cones of the balsam fir.

The wood is light, moderately soft, medium strong and elastic. It is in great demand for the manufacture of paper pulp. The wood is often used for musical instruments, furniture and aeroplanes. The red spruce is planted quite often for ornamental purposes and is being planted in some parts of the state for Christmas tree production.

Distribution in West Virginia: Once occupied about one-half million acres, principally in Grant, Tucker, Randolph, Pendleton, Pocahontas, Webster, Nicholas, Preston and Greenbrier counties. The original stand has been almost entirely removed by lumbermen.

EASTERN HEMLOCK

(*Tsuga canadensis* (L.) Carr.)

The hemlock, also known as spruce pine, is one of our largest timber trees. It attains a height of from 70 to 120 feet and a diameter of from 2 to 4 feet. It is quite common along streams and on cool slopes throughout the mountains. Its horizontal or ascending branches and flexible drooping twigs from a pyramidal crown and make it one of our most beautiful evergreens.



EASTERN HEMLOCK

The needles are from one-third to two-thirds of an inch in length, oblong, dark green on the upper surface and whitish beneath. They fall during the third season. The cones are oblong, about three-fourths of an inch in length, light, brown in color and mature each autumn. The scales on the cones are rounded and about as broad as long. The seed is quite small, matures in the fall and drops off during the winter.

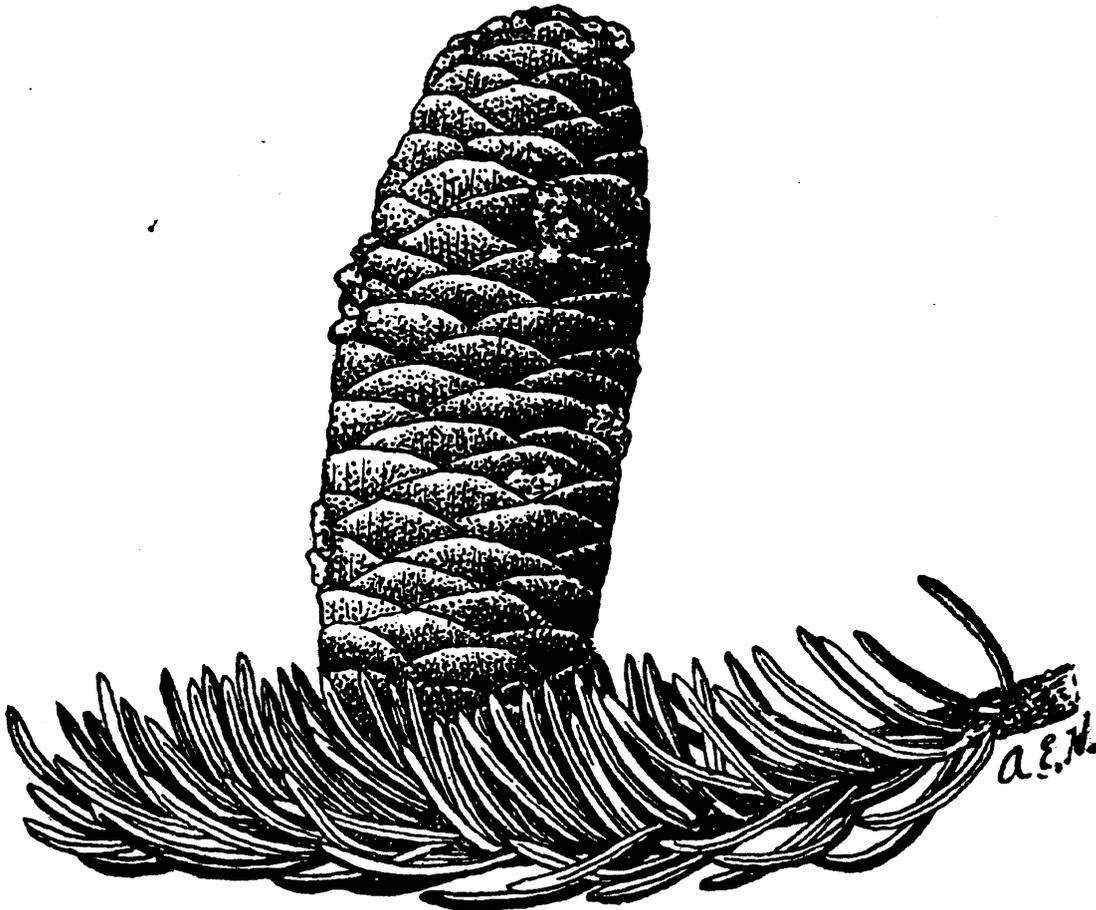
The wood is light, medium hard, brittle, not strong, coarse grained, and splintery. It is not durable when exposed to the weather. The bark on old trunks is cinnamon-red or dark gray. The wood is used for construction purposes, lath and paper pulp. The trees are often planted ornamentally for hedges.

Distribution in West Virginia: Generally distributed through the state. Most commonly found along streams and rivers, and on cool slopes.

BALSAM FIR
(*Abies balsamea* (L.) Mill.)

The balsam fir, also known as mountain balsam, is found on our highest mountains in a very few localities.

It is a tree of from 30 to 70 feet in height with a diameter of 1 to 2½ feet, pyramidal crown and horizontal or ascending branches. The bark on the younger trees is pale gray, smooth, thin and prominently marked by "blisters" filled with resin or balsam. The buds are always covered with resin or balsam.



BALSAM FIR

The needles are dark silky green in color, flat, linear, and ½ to 1 inch long. The leaves are rounded at the terminal ends and often notched.

The fruit is an upright purple cone. The seeds have very white wings and when ripe fall together with the scales of the cone.

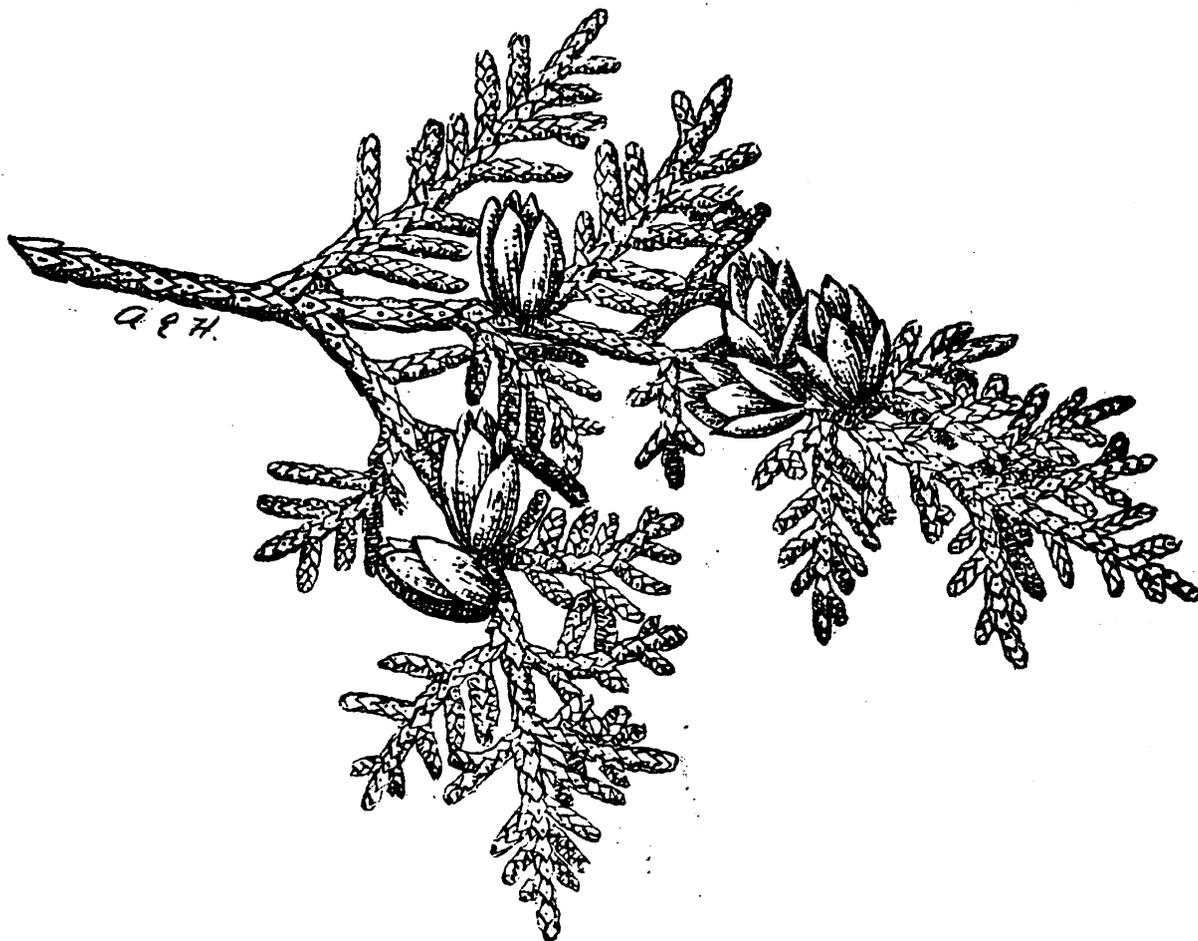
The wood is light, soft, not strong and coarse grained. Because of its scarcity in West Virginia this tree is of little commercial importance; however, in other states the tree is used for construction lumber and paper pulp. It is a most beautiful ornamental and is highly prized for use as Christmas trees.

Distribution in West Virginia: Found at Cheat Bridge, Randolph County, Canaan Valley, Tucker County, near the head of the Greenbrier River, Pocahontas county, and in Grant county at Stony River.

NORTHERN WHITE-CEDAR—EASTERN ARBORVITAE

(*Thuja occidentalis* L.)

The arborvitae, often called white cedar and northern white cedar, is so uncommon in West Virginia and usually is so small a size that it has but little value except from the standpoint of ornamental planting. It grows slowly and is a relatively small tree in this state. Its height seldom exceeds 40 feet and its diameter is from 1 to 2 feet. The trunk is quite often divided near the base and the crown is compact and pyramidal. The arborvitae prefers stream banks, swamps and is sometimes found on rocky hillsides.



ARBORVITAE

The leaves are flat, scale-like and are longest and long-pointed on the leading shoots. They are yellow-green in color and when crushed give off a very pleasing aromatic odor.

The bark on the trunk is reddish-brown, slightly furrowed, thin, and separated into ragged, twisted strips. The wood is light, soft, brittle, durable and fragrant. The heartwood is yellowish-brown and the sap wood whitish and thin. This tree is more common in the states northeast of West Virginia.

Distribution in West Virginia: Found on the South Branch of the Potomac River and on the North Fork in Pendleton County. Reported also on the Greenbrier River in Greenbrier, and Summers counties, and in Grant and Mineral counties.

EASTERN RED CEDAR (*Juniperus virginiana* L.)

The red cedar is quite a valuable tree found on rough limestone soils and dry hillsides, but grows in a variety of soils and situations. Its chief virtue is its durable wood. The tree in West Virginia grows from 30 to 40 feet in height and attains a diameter of 1 to 2 feet. Its crown is either pyramidal or rounded and dense.



The leaves are of two kinds, and usually both kinds are found on the same tree. The commoner type is dark green and scale-like, clasping to the stem in four ranks, giving the stems the appearance of being square. The other type usually appears on the young growth, is awl-shaped, quite sharp pointed, spreading and whitish.

EASTERN RED CEDAR

The fruit is berry-like, matures in the fall in one season and is pale blue. The fruit is approximately $\frac{1}{4}$ of an inch in diameter and incloses one or two seeds in the sweet flesh. It is a favorite winter food for the birds.

The bark is thin, reddish-brown and peels off in long shred-like strips.

The heartwood is distinctly red and the sapwood white. This color combination creates very striking effects when finished as cedar chests, closets and interior woodwork. The wood is aromatic, soft, strong, and of even texture. These qualities make it most desirable for lead pencils. The wood is in great demand for use as fence posts, poles and rustic work on account of its durability in contact with the soil.

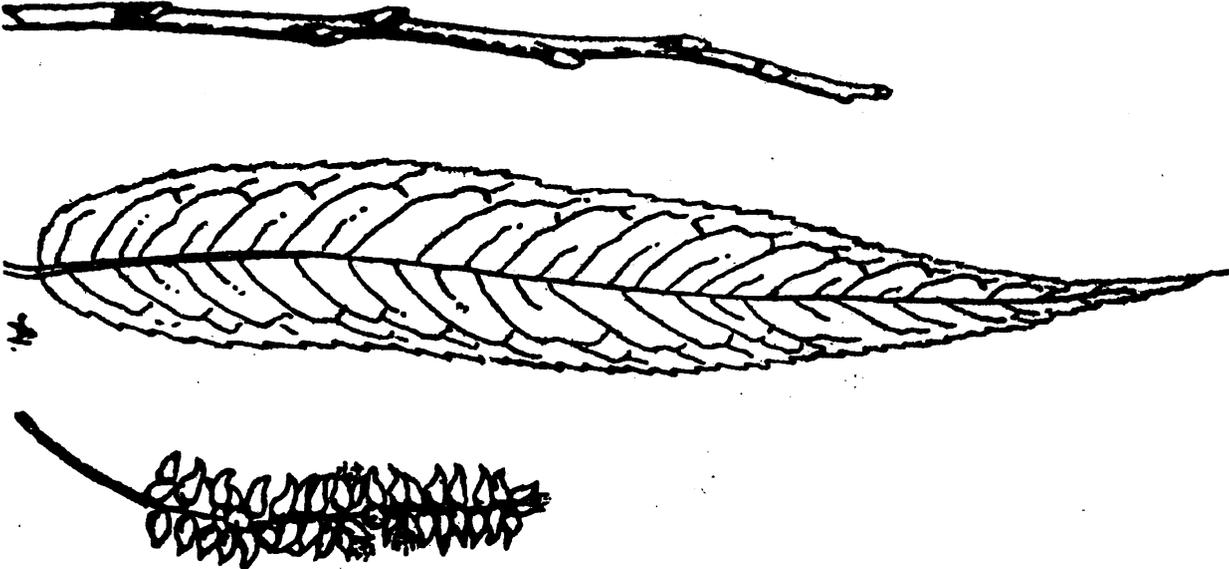
Red cedar is an alternate host for apple rust, and because of this many trees in the vicinity of apple orchards in the Eastern Panhandle have been removed by the State Department of Agriculture.

Distribution in West Virginia: Distributed throughout the state except at high elevations. Most common in Jefferson, Berkeley, Morgan, Hampshire, Monroe and parts of Gilmer, Calhoun and Putnam Counties.

BLACK WILLOW

(Salix nigra Marsh.)

The black willow is the commonest and most easily identified species of the willows. It rarely grows to be over 50 feet in height and is frequently found growing singly or in groups. The black willow always grows in moist soil and prefers stream banks and pond borders. In winter the easily separable bright reddish-brown or golden naked twigs are quite conspicuous.



BLACK WILLOW

The leaves are from 3 to 6 inches long and less than $\frac{1}{2}$ inch wide. They are taper-pointed and have finely notched margins. The leaves are bright green in color and turn pale yellow in the early fall.

The flowers are in catkins, the male and female on separate trees. The fruit is a pod bearing numerous small seeds which are covered with long silky down. They are often blown long distances by the wind. The bark on the twigs is reddish-brown and on old trunks thick, rough and shaggy. In color it varies from light brown tinged with dark brown to nearly black.

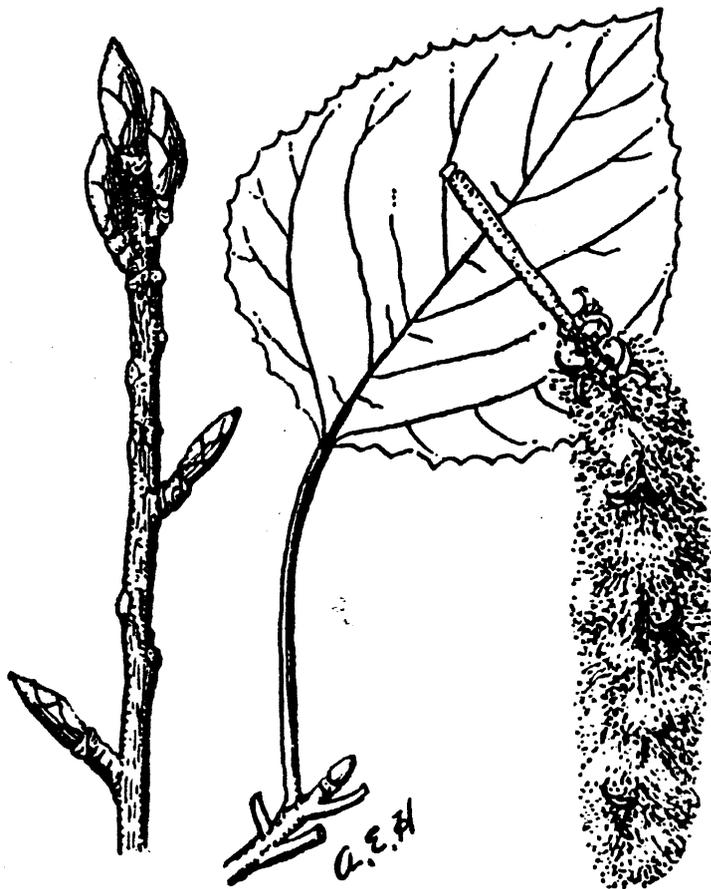
The wood is soft, light and not strong. It is not durable in contact with the soil. A high grade of charcoal used in the manufacturer of gun powder is obtained from the willow wood. Willows are always of value in checking soil erosion and waste along stream banks.

Distribution in West Virginia: Common along streams in all parts of the state.

QUAKING ASPEN

(*Populus tremuloides* Michx.)

The trembling aspen, also known as quaking aspen, shaking aspen and American aspen, gets its common names from the characteristic shaking or shivering of the leaves, even with the slightest breeze. It can be distinguished from all other poplars by its finely-toothed tremulous leaves, but prefers sandy and gravelly soils and frequent cuts over forest areas which have been burned. It attains a height of 30 to 40 feet and a diameter of 10 to 20 inches. The trunk is usually continuous and supports a rounded, loose crown.



QUAKING ASPEN

The leaves are alternate, simple, $1\frac{1}{2}$ to 2 inches long, rounded, heart-shaped and thin. The petiole is flattened vertically so that the leaves flutter in the lightest of breezes. The flowers appear in April before the leaves and drop from the twigs. The fruit is a capsule about $\frac{1}{4}$ inch long and the seeds are brown with long white hairs. They are carried long distances by the wind.

The bark is a whitish-green and sometimes raised with warty bands and dark irregular blotches below the base of the limbs.

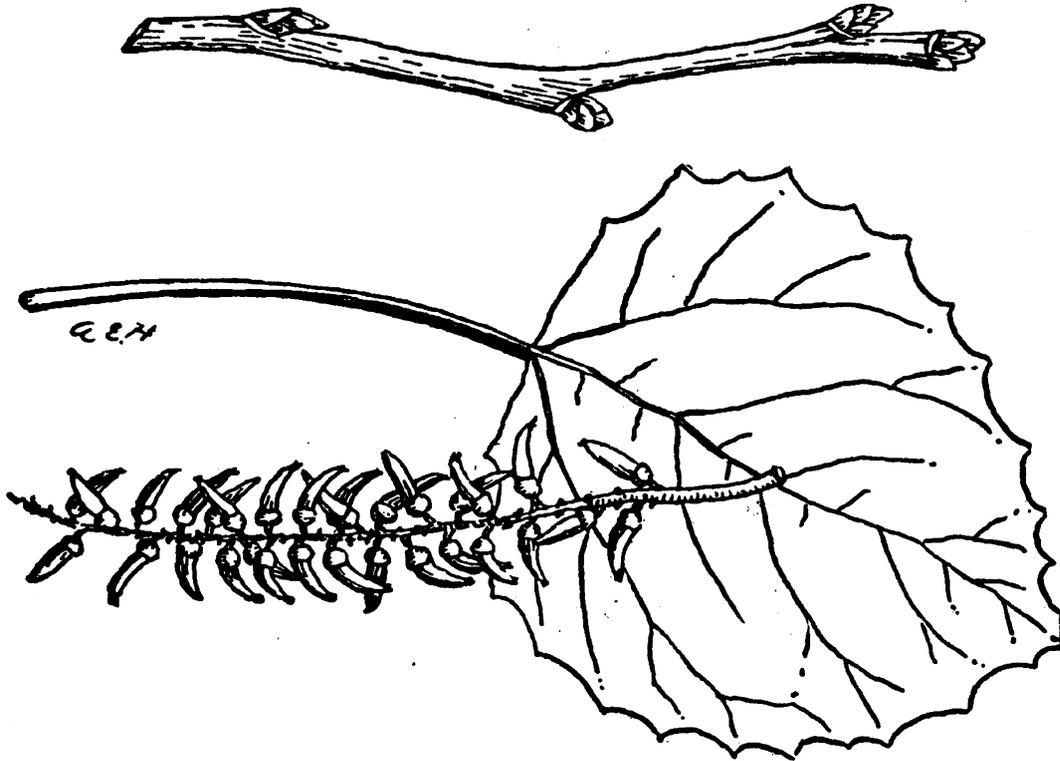
The wood is light, soft, not strong nor durable, brownish in color with a lighter colored sap wood. The species is not important in West Virginia for commercial purposes but is often found in farm yards where its chief purpose is for shade.

Distribution in West Virginia: Scattered along the Allegheny Mountains.

BIGTOOTH ASPEN

(*Populus grandidentata* Michx.)

The bigtooth aspen, also known as large toothed poplar, can be readily distinguished from trembling aspen by its larger and coarse toothed leaves. It attains a height of 30 to 60 feet, diameter of 1 to 2 feet and the trunk is continuous and tapering. The slender ascending branches form a loose oval crown. This tree prefers rich, moist, sandy soil.



BIGTOOTH ASPEN

The leaves are alternate, simple, thin and coarsely toothed. They are dark green above, paler beneath and smooth. The petioles are long, slender and flattened.

The flowers occur in April and May before the leaves. They resemble short catkins. The fruit is a cone-shaped, hairy capsule about $\frac{1}{8}$ of an inch long on drooping catkins. The seeds are brown, small, with long white hairs easily carried by wind.

The bark is smooth except near the base, and is a whitish-green in color. It resembles that of trembling aspen but has a more yellowish or buff color on young trunks and limbs.

The wood is light, soft, not strong and light brown with almost white sap wood. It is comparatively uncommon and of very little commercial importance.

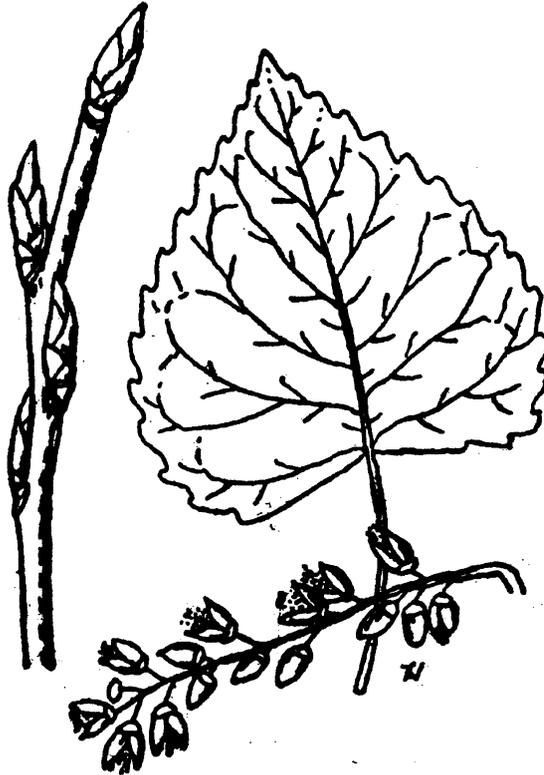
The aspen is a favorite food of beavers.

Distribution in West Virginia: Found in nearly all sections of the state.

EASTERN COTTONWOOD

(Populus deltoides Marsh.)

The eastern poplar is often commonly called cottonwood and is scattered widely but nowhere occurs in great abundance. It is planted by many of the mining companies throughout the state for shade purposes, but objections are being constantly raised because of its vast root system, which often breaks pavement and interrupts sewer lines. In its native condition it prefers rich, moist soils along the banks of streams. The height is 50 to 100 feet with a diameter of 3 to 5 feet. The trunk is usually continuous and tapering. The branches form a long pyramidal crown.



EASTERN COTTONWOOD

The leaves are simple, alternate, broadly ovate or triangular, pointed, square at the base and coarsely toothed. They are 3 to 5 inches across each way covered with soft white hairs on the underside. The winter buds are covered with brown resinous scales. The flowers are in catkins of two kinds, male and female, and appear in April before the leaves. The fruit containing the seed has a cluster of white silky hairs which carries it for long distances in the wind.

The wood is light, soft, and warps easily. The tree is easily propagated by cutting and is easily broken by winds.

Distribution in West Virginia: Found in many places along the South Branch of the Potomac, the Kanawha, the Ohio and the tributaries of these streams.

BUTTERNUT

(*Juglans cinerea* L.)

The butternut, often called white walnut in the northern states, is a somewhat smaller tree than the black walnut, though it sometimes reaches a height of 70 feet and a diameter of 3 feet. The trunk is usually forked and crooked, and this makes it less desirable for saw timber. The bark is light gray on the branches differing from that of the black walnut since the bark on the black walnut is much darker.



WHITE WALNUT OR BUTTERNUT

The leaves are compound, approximately 15 to 30 inches long, and each has 11 to 17 sharp-pointed oblong, finely-toothed leaflets which are 2 to 3 inches long.

The fruit is a nut inclosed in an oblong, somewhat pointed, yellowish-green husk about 2 inches long. The husk is covered with rusty, sticky hairs and is somewhat pear-shaped. In certain localities of West Virginia this tree is called pear walnut. The nut has a rough, grooved shell and an edible kernel.

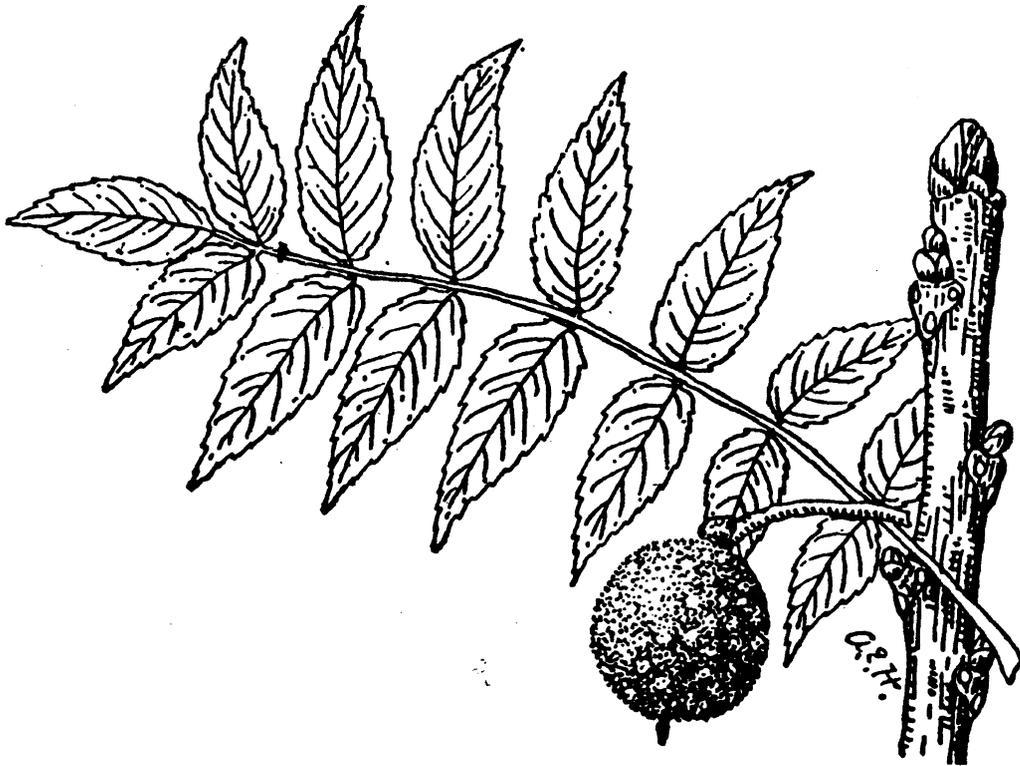
The wood is light, soft, not strong, coarse grained and takes a good polish. It is used in the manufacturer of furniture, principally, and for interior finishes of houses. It is less common and less valuable than its near relative, the black walnut.

Distribution in West Virginia: Common throughout the state. Thrives better at higher altitudes than the black walnut, reaching elevations of three thousand feet in Randolph and other Alleghany Mountain counties.

BLACK WALNUT

(*Juglans nigra* L.)

The black walnut is one of our most valuable forest trees because of its superior wood. It is prized also on account of its nuts, and is being planted commercially throughout the state. It sometimes attains a height of 100 feet with a straight stem clear of branches for half its height. In open grown trees the stems are short and the crown broad and spreading.



BLACK WALNUT

The leaves are alternate, compound, 1 to 2 feet long, consisting of from 15 to 23 leaflets which are yellowish-green in color. The leaflets are about 3 inches long, extremely tapering at the end and finely toothed along the margin. The bark is thick, dark brown and divided by rather deep fissures into rounded ridges.

The fruit is a nut borne singly or in pairs and is inclosed in a solid green husk. The nut itself is black with a very hard, thick, finely ridged shell inclosing a rich, highly nutritious kernel. Black walnut prefers rich, moist, soil and requires an abundance of light.

The heart wood is of a superior quality and value. It is heavy, hard, strong, and its rich brown color, freedom from warping and checking, ability to take a high polish and durability make it an excellent species for a great variety of uses. It is highly desirable for furniture and cabinet work, gun stocks and airplane propellers. It is easily propagated from nuts and grows rapidly on good rich soil.

Distribution in West Virginia: Common in all parts of the state except at the highest elevations.

SHAGBARK HICKORY

(*Carya ovata* (Mill.) K. Koch.)

The shagbark hickory, also known as scaly bark hickory, is one of the most widely known trees in the state because of its sweet and delicious nuts. It is a large commercial tree growing from 60 to 100 feet in height and 1 to 2 feet in diameter. It thrives best in rich dry soils, and is common along streams and moist hillsides.



SHAGBARK HICKORY

The bark of the trunk is rougher than on other hickories, and is light gray in color. It separates into thick plates which are only slightly attached to the tree. This gives it a shaggy appearance, from whence comes its common name. The bark is very hard. The leaves are compound, alternate, and are from 8 to 15 inches long. Each leaf has five, and rarely 7 ovate leaflets.

The fruit is borne singly or in pairs and is round-oval. The husk covering the nut is thick and deeply grooved at the seams. The nut is much compressed and pale, the shell thin and the kernel sweet.

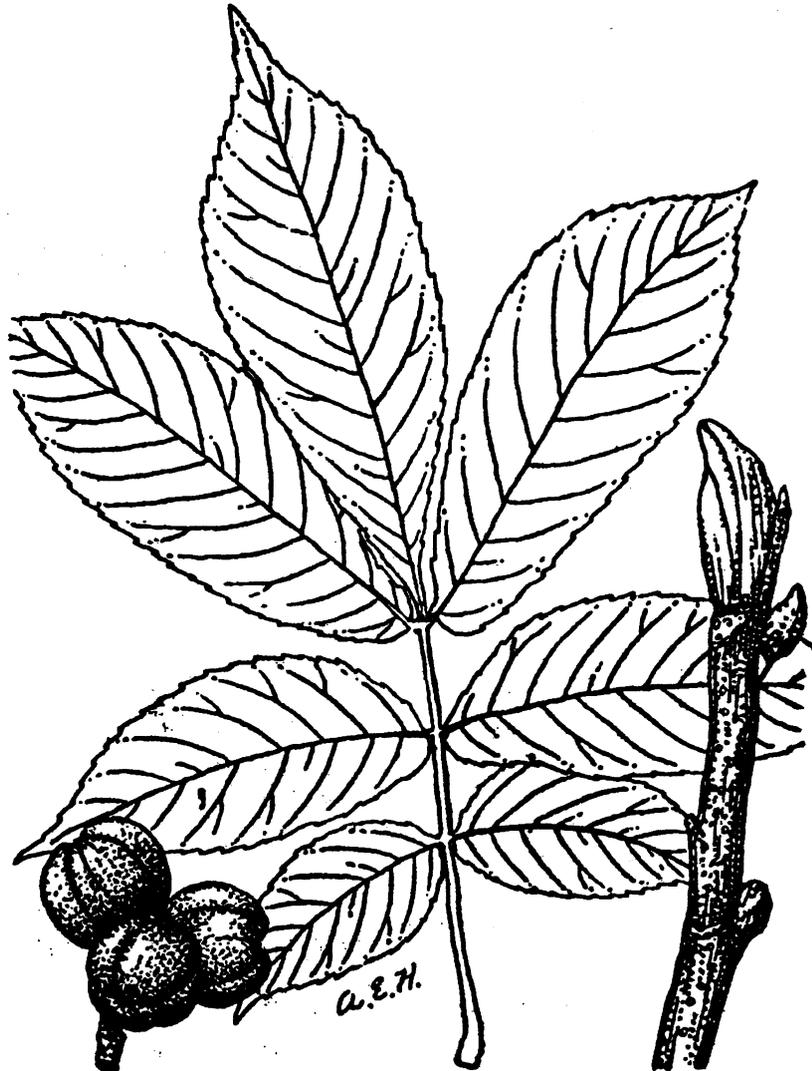
The wood is heavy, hard, tough, and very strong. It is used largely in the manufacture of handles and farming implements, and in the building of carriages and wagons. Shagbark hickory is an excellent fuel wood and the nut furnishes excellent food for squirrels.

Distribution in West Virginia: Common through all parts of the state but not very plentiful in Wetzel, Roane, Jackson and Summers Counties.

SHELLBARK HICKORY

(*Carya laciniosa* Mich. f. Loud.)

The big shellbark hickory is too rare to be an important tree in West Virginia. Its height is from 60 to 100 feet with a diameter of from 1 to 2 feet. The leaves are alternate, compound, with usually 7 sharp-pointed leaflets. The leaflets are serrate, dark green and smooth above, paler, covered with soft hairs beneath.



The fruit is ovoid with four shallow creases about the middle, a smooth thick husk spreading to the base covers the nut. The nut is large, thick shelled, and angled. The kernel is sweet and edible.

SHELLBARK HICKORY

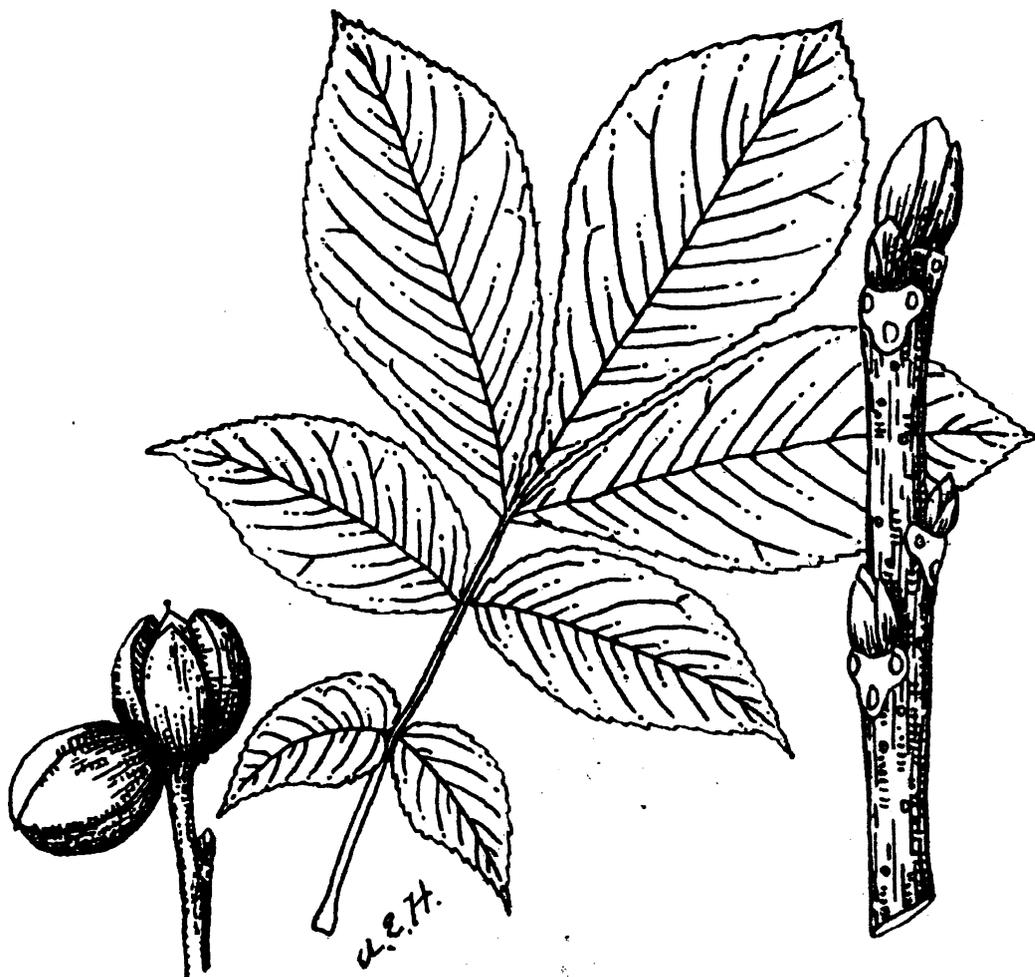
The bark of the big shellbark hickory is quite similar to that of the small shellbark hickory. The wood of this species can hardly be distinguished from that of the small shellbark hickory. This tree prefers rich bottom land and coves near streams. The wood of this tree is equal to that of other species of hickory but the nuts are not as valuable on account of the thickness of their shells. The chief difference between the big shellbark hickory and the shellbark hickory is in the buds and the fruit. In every case the buds and fruit are larger on the big shellbark hickory.

Distribution in West Virginia: Found along the Ohio River bottoms. Reported from Harrison, Upshur, Monongalia, Roane, Cabell, Lincoln, Summers, Taylor and Hampshire counties.

MOCKERNUT HICKORY

(*Carya tomentosa* Nutt.)

The mockernut hickory is often commonly called white hickory or white heart hickory. It is a tall, short-limbed tree averaging 60 feet high and 1 to 2 feet in diameter.



MOCKERNUT HICKORY

The bark is dark gray, hard, closely and deeply furrowed, and often cross-furrowed. The winter buds are large and broadly egg-shaped. They are covered with downy, hard scales. Recent growth shoots are short, straight, and more or less covered with downy growth.

The leaves are large, compound, alternate, strong-scented and hairy. They are composed of from 7 to 9 oblong leaflets. These leaflets turn to a rich golden yellow color in the early fall.

The fruit is oval, nearly round or slightly pear shaped with a very thick strong-scented husk. The nut is sometimes 2 to 3 inches long, ridged, light brown and has a very thick shell inclosing a small, sweet, edible kernel.

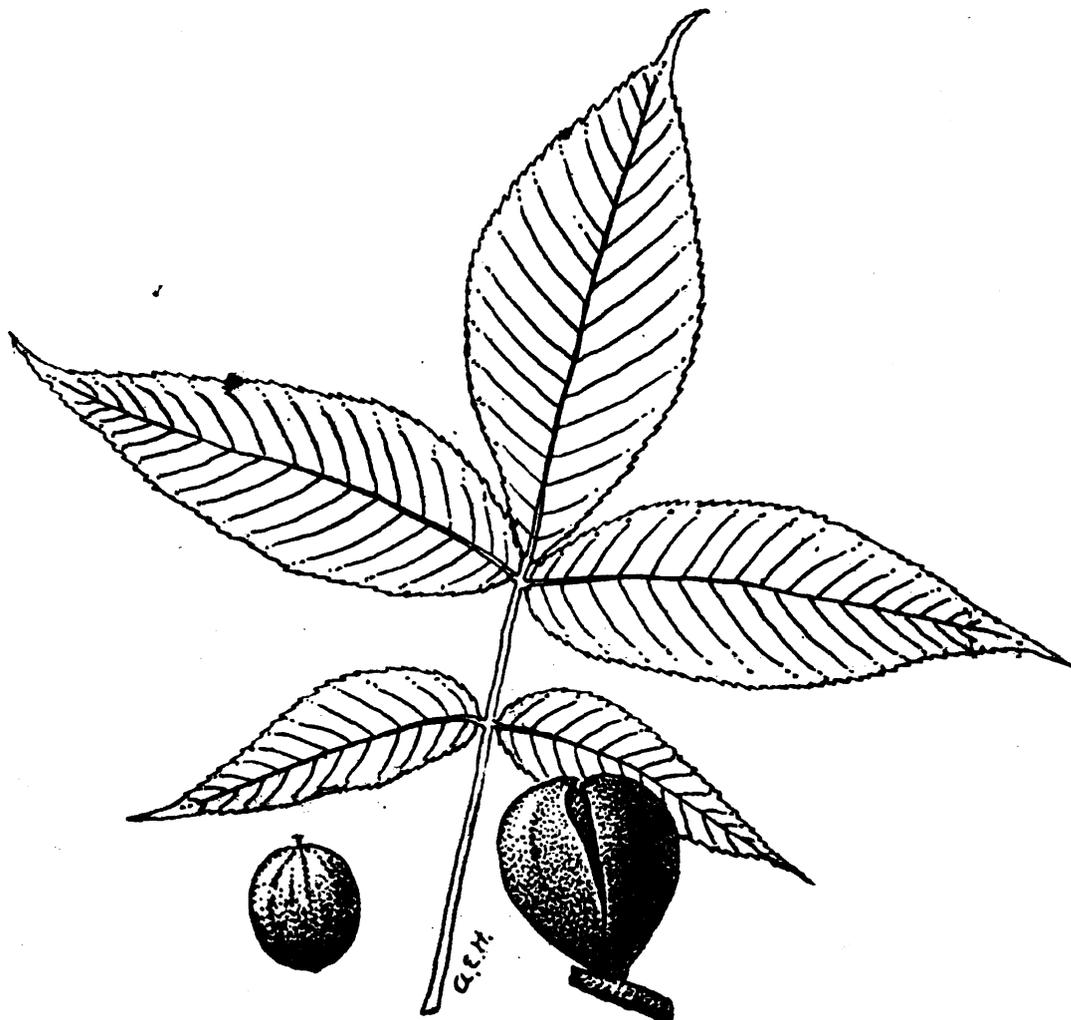
The wood is heavy, hard, tough, strong, and it is white excepting the small dark brown heart, from whence the name white hickory. It is unsurpassed for handle uses and other purposes where strength and elasticity are desirable.

Distribution in West Virginia: Common in many parts of the state. Most plentiful in the eastern section.

PIGNUT HICKORY

(*Carya glabra* (Mill.) Sweet)

The pignut hickory is a medium to large tree 50 to 80 feet in height with a diameter of 2 to 3 feet. The trunk is usually straight, clean, and the crown is rounded or narrowly oblong. It thrives on almost any rich, well-drained soil of ridges and hillsides, but grows also on quite poor soil.



PIGNUT HICKORY

The bark is close-ridged and grayish, but occasionally rough and flaky. The twigs are thin and a smooth glossy brown. The winter buds are egg-shaped.

The leaves are alternate, compound, 8 to 12 inches long, and composed of 5 to 7 leaflets. The individual leaflets are small and narrow.

The fruit is pear-shaped or rounded. A very thin husk incloses a smooth light brown nut. The nut itself is thick-shelled and has an edible kernel.

The wood is heavy, hard, strong, tough, and flexible. Its uses are the same as those of the other hickories. It is quite a common species in practically all of the farm woodlands of the state.

Distribution in West Virginia: Found throughout the state except in the Spruce belt.

BITTERNUT HICKORY

(*Carya cordiformis* (Wangenh.) K. Koch)

The bitternut hickory is a tall slender tree with a broad pyramidal crown. It attains a height of 60 to 75 feet with a diameter of 1 to 2½ feet. The trunk is usually long and free from limbs. The tree is of less value than are other hickories.



BITTERNUT HICKORY

The bark on the trunk is a granite-gray, faintly tinged with yellow and not quite as rough as most of the hickories. It is broken into thin plate-like scales.

The leaves are alternate, compound, from 6 to 10 inches long and composed of from 7 to 11 leaflets. The leaflets are taper-pointed, serrate, yellow-green above and paler beneath. The leaflets are smaller and more slender than those of the other hickories.

The fruit is about 1 inch long with a thin husk, while the nut is usually thin-shelled and brittle. The kernel is very bitter, from whence comes the common name of the tree.

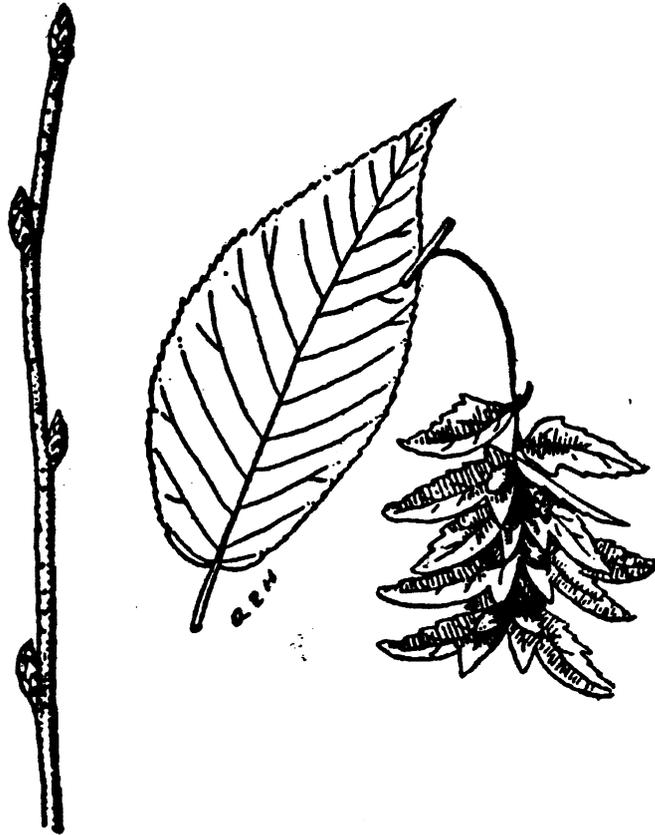
The wood is hard, strong and heavy, reddish-brown in color. From this last mentioned fact it sometimes gets a local name of red hickory. This tree can be distinguished by its more numerous leaflets and by its small bitter-kerneled nuts.

Distribution in West Virginia: Found throughout the state except at high elevations.

AMERICAN HORNBEAM

(*Carpinus caroliniana* Walt.)

The American hornbeam, often known as water beech, muscle tree and occasionally as smooth bark ironwood, is a small, slow growing, bushy, tree with a spreading top and slender crooked or drooping branches with fine twigs. It attains a height of 15 to 30 feet and a diameter of 4 to 8 inches. It can grow in moderate shade and is a common understory tree in the forest.



AMERICAN HORNBEAM

The trunk is fluted with irregular ridges extending up and down the tree. The bark is of a light grayish-brown color to a dark bluish-gray.

The leaves are simple, alternate, oval, long-pointed and doubly toothed along the margin. They are 2 or 3 inches in length and resemble those of black birch but are smaller.

The flowers are borne in catkins separately on the same tree. The male catkin is about 1½ inches long and the female about ¾ inch. The fruit is a nutlet about 1/3 inch long. It falls attached to the leaflike scale which acts as a wing in aiding its distribution by the wind.

The wood is tough, heavy, and strong. It is of little commercial importance and the tree prefers moist soil of stream borders, swamps and hillsides.

Distribution in West Virginia: Found throughout the state.

EASTERN HOPHORNBEAM—IRONWOOD

(*Ostrya virginiana* (Mill.) K. Koch)

The ironwood tree, often commonly called hophornbeam and rough-barked ironwood, is a small slender generally round-topped tree 20 to 30 feet in height and 7 to 10 inches in diameter. It gets its common names from the qualities of its wood and its hop-like fruit. It prefers rich open spaces of slopes and ridges but is fairly common as an under-story tree. It is quite tolerant of shade.



IRONWOOD

The bark is mostly light brown or reddish-brown and is finely divided into thin scales, by which the tree can be easily identified. In looking at the bark from a distance it sometimes resembles that of red cedar.

The leaves are simple, alternate, 2 to 4 inches long, thin, and tough. They are smooth above and slightly hairy beneath.

The fruit resembles that of the common hop vine and consists of a branch of leafy bracts 1 to 2 inches long which contain a number of nutlets.

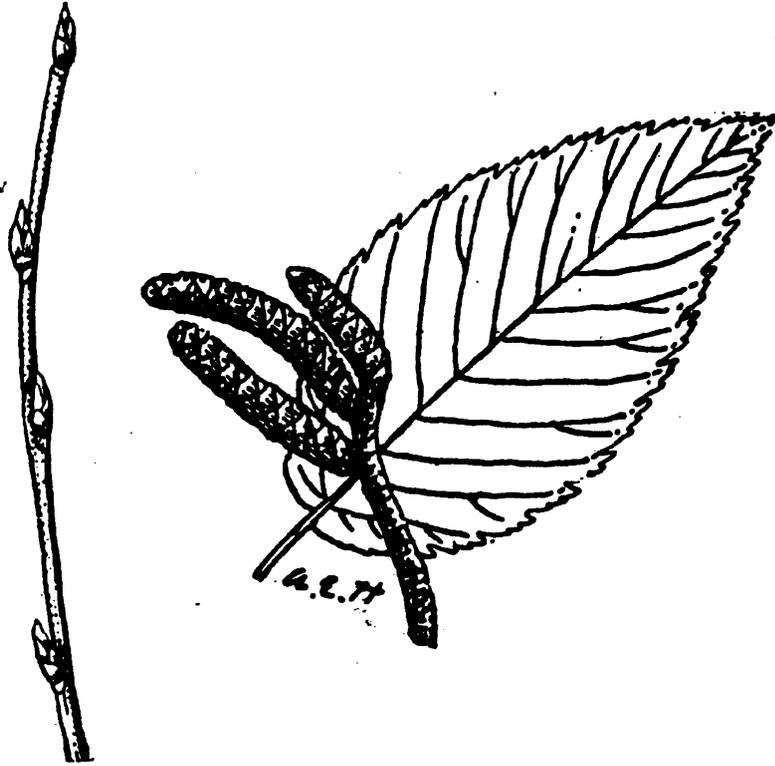
The wood is hard, strong, durable, and is often used for fence posts, handles and other small articles. This tree is a relatively unimportant species commercially.

Distribution in West Virginia: Not as common as blue beech but locally distributed in most parts of the state.

BLACK BIRCH

(*Betula lenta* L.)

The black birch is also commonly known as sweet birch or cherry birch. It grows in a variety of soils and exposures, but prefers rich moist woodland. It attains its best development in the mountainous sections on rich slopes, where it reaches a height of 50 to 85 feet and a diameter of 2 to 3 feet. This tree is a moderately slow growing species but is quite valuable for its products.



BLACK BIRCH

The bark of the trunk is dark brown, sometimes almost black, and broken into large irregular plates. The small branches and twigs are dark in color but lustrous and very aromatic. They are frequently cut and distilled for the production of birch oil and as wintergreen flavoring.

The leaves are simple, alternate, 3 to 4 inches long, finely toothed, and dark green.

The flowers appear in April before the leaves in yellowish catkins. The seeds ripen in late summer or Autumn and fall with the loosened scales of the cone.

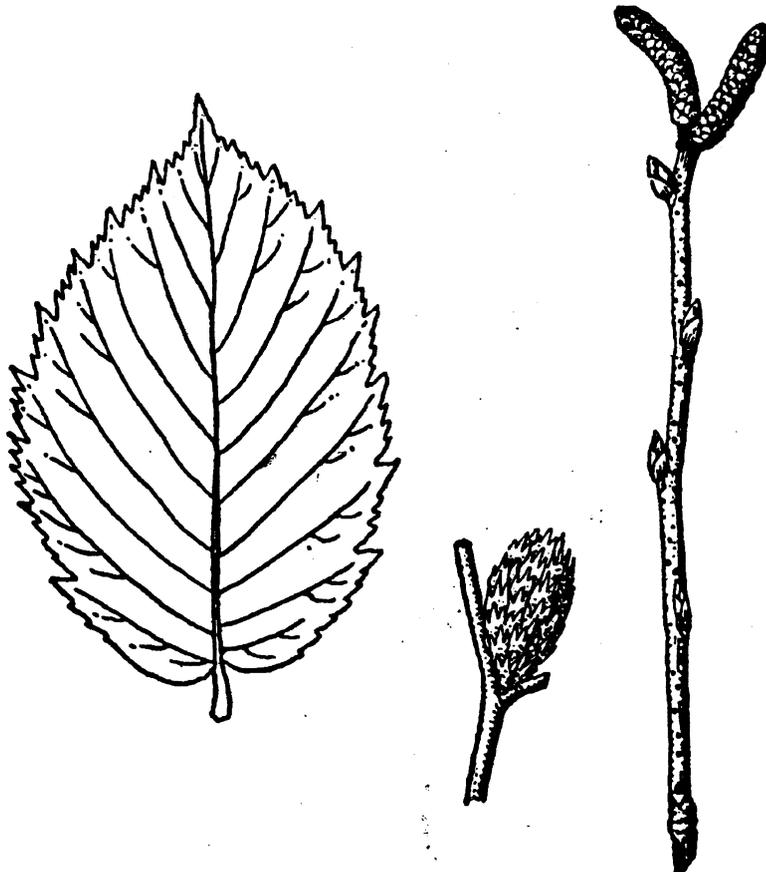
The wood is heavy, very strong, hard and dark brown in color. It is used extensively for furniture, often being sold as mahogany. The tree can be distinguished from yellow birch, which it closely resembles, by its darker colored bark which does not peel off in loose flakes.

Distribution in West Virginia: Locally scattered in most parts of the state. Fairly uncommon in southern West Virginia except at the higher elevations.

YELLOW BIRCH

(*Betula lutea* Michx.)

The yellow birch occurs frequently in the high mountain sections, often growing with spruce and hemlock. It prefers moist fertile uplands and grows generally at greater elevations than the black birch. It is a large tree, often with a short trunk though it occasionally reaches a height of 100 feet and a diameter of 4 feet.



YELLOW BIRCH

The bark on the trunk and large branches is silvery or yellow-gray, which provides the chief distinguishing characteristic of the species. On old trees the bark becomes shaggy. The twigs are light brown and slightly aromatic, but less so than those of the black birch.

The leaves are alternate, simple, finely-toothed, 3 to 5 inches long and dark green on the upper surface.

The flowers are in catkins and develop in early spring.

The wood is heavy, strong, hard, close-grained and light brown in color. It is used for flooring, woodenware, furniture, but is not as valuable as black birch. It is an excellent fuel wood.

Distribution in West Virginia: Found in high mountain sections, in association with spruce and hemlock.

RIVER BIRCH

(*Betula nigra* L.)

The red birch is sometimes called river birch, is practically always found along the banks of rivers and stream borders. It is very rarely found on dry soils. This tree attains a height of 50 to 80 feet with a diameter of 1 to 2½ feet. Its trunk is usually short and divides into two or three large ascending limbs. The crown is irregular and oblong.



RIVER BIRCH

The bark provides a ready means of distinguishing this tree. It varies from a reddish-brown to cinnamon-red in color and peels off in tough papery layers. These layers persist on the trunk and give it a ragged distinctive appearance. The papery bark is usually covered with a gray powder. On older trees the bark becomes thick and deeply furrowed.

The leaves are simple, alternate, 2 to 3 inches long, oval in shape with double toothed edges. The upper surface is dark green and the lower a pale yellowish green. The flowers are in catkins and the two kinds grow on the same tree.

The fruit is cone-shaped and about 1 inch long. It is densely crowded with little winged-needles which ripen in June.

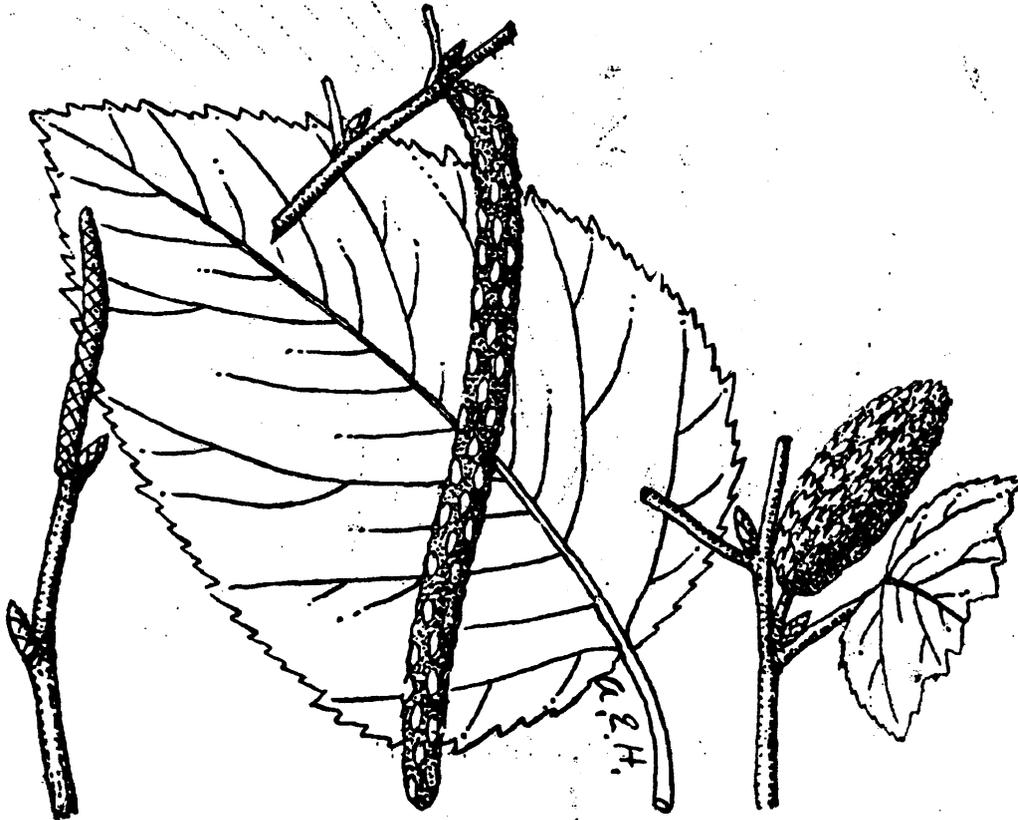
The wood is strong and fairly close-grained. It is used to some extent in the manufacture of wagon hubs and wooden ware. It does not figure largely in commercial lumber, but is important in holding stream banks from falling in, and at the same time it adds to the picturesque beauty of river scenery.

Distribution in West Virginia: Nearly always confined to stream banks and found along most streams of the lower elevations in the state.

PAPER BIRCH

(*Betula papyrifera* Marsh.)

The paper birch is commonly called canoe birch or white birch. It is a very rare species in West Virginia. The twigs are dull orange or red in winter but later become brown. The tree trunk is covered with a thin papery bark which becomes pure white with age. It is marked by many pores and separates into thin sheets which often roll up. Near the ground on old trees the bark thins and forms into dark colored scales. The paper birch is much planted for ornamental purposes.



PAPER BIRCH

The leaves are oval in shape, pointed, and at the base rounded. They are irregular and doubly toothed. They are 2 to 3 inches long and 1 to 2 inches broad, and become thick and leathery in texture. The male flowers appear in the fall but ripen in the spring, when the female flowers appear and mature. The fruit bears a tiny nut about one-sixteenth of an inch long.

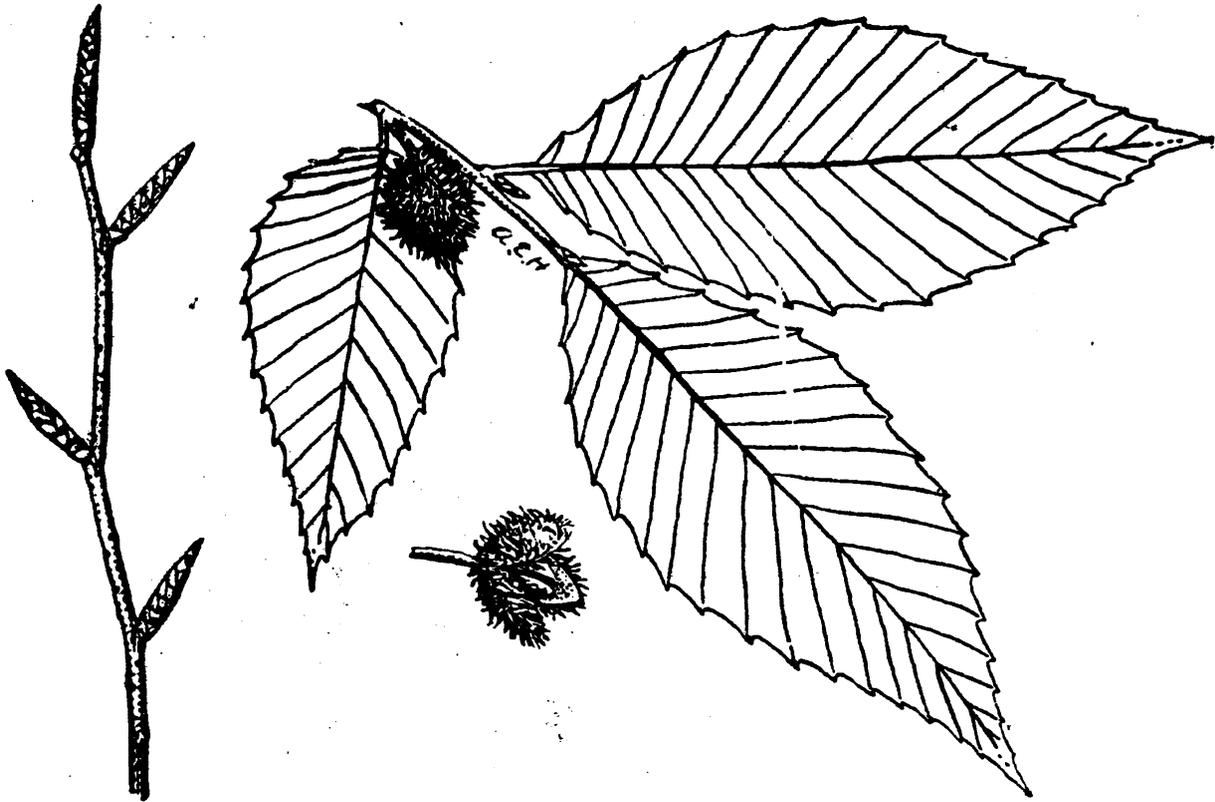
The wood is hard, strong, light in weight and is brown tinted with red, with nearly white sap wood. This tree is of no commercial importance in West Virginia because of its scarcity but is used commercially in other states for spools, shoe pegs, tooth picks, paper pulp, and the bark was extensively used by the Indians for covering their canoes and making of baskets.

Distribution in West Virginia: Found on the summit of North Fork Mountain in Pendleton county and in Grant and Hampshire counties.

AMERICAN BEECH

(*Fagus grandifolia* Ehrh.)

The American beech is one of our most familiar trees. It makes its best growth in the moist coves in the mountains. It is often found scattered with oaks and other mixed hardwoods. It is certainly one of the most beautiful of all the hardwoods, either in summer or in winter.



AMERICAN BEECH

The leaves are simple, alternate, oval, 3 to 4 inches long, and coarsely-toothed along the margin. The leaves hang to the branches long into the winter.

The bark is perhaps the most distinctive characteristic of the tree. It is very smooth, close, and light gray in color. The bark is always tempting to the owners of a jack-knife. This is so true that the tree has been well designated as the "initial tree."

The little brown three-sided beech nuts are well known everywhere. They form usually in pairs in a small prickly bur. The kernel is sweet and edible but so small as to offer insufficient reward for the pains of breaking open the thin-shelled husk. It is an excellent squirrel food.

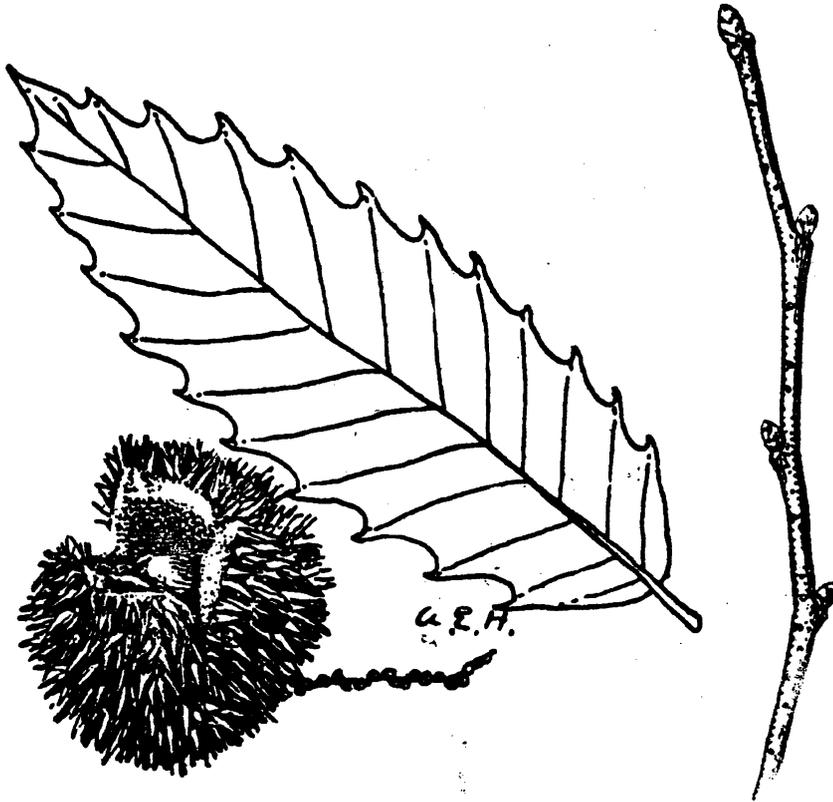
The wood of the beech is very hard, strong, and tough, but does not last long on exposure to the weather or in the soil. It is of moderate economic importance for timber and is always a valuable tree for shade.

Distribution in West Virginia: Rather rare in the eastern panhandle, but otherwise common throughout the state.

AMERICAN CHESTNUT

(*Castanea dentata* (Marsh.) Borkh.)

The chestnut in the past has been one of the most useful of all our forest trees, and has often been called "the farmer's best friend." A bark disease known as chestnut blight has swept the entire range of the chestnut and killed this species through out all of Eastern United States. Sprouts persist, however, and it is a common sight in West Virginia to see hundreds of acres of dead chestnut timber with many brushy sprouts at the base of each tree.



AMERICAN CHESTNUT

The long-pointed leaves with their coarse teeth each bearing a slender spine are quite distinctive. They are simple, alternate, and average 5 to 10 inches in length. The fruit is a prickly bur which opens at the first frost or earlier and drops two or three shiny, brown, sweet, delicious nuts.

The bark becomes broken into light gray, flat ridges which often have a tendency toward a spiral, twisted cord around the trunk.

The wood is light, soft, not strong, coarse-grained and is durable in contact with soil. It has qualities which make it valuable for posts, poles, cross-ties, as well as for construction purposes and interior finishes. It is a rapid grower and its nuts are always prized by everyone.

Distribution in West Virginia: Once common throughout the state. Now very rare because of its destruction by the Chestnut blight.

ALLEGHANY CHINQUAPIN

(*Castanea pumila* (L.) Mill.)

The chinquapin has sometimes been called locally dwarf chestnut. This species is usually a shrub in West Virginia, and often bears fruit when only a few feet high. It sometimes reaches a height of 30 feet with a diameter of 1 to 2 feet, however, it is usually much smaller than this in our state. The trunk is short and supports a rounded crown.



CHINQUAPIN

The leaves are alternate simple, 2 to 6 inches, long and narrow at both ends. They are coarsely serrate, thick, smooth and yellow-green on the upper surface. The lower surface of the leaves are paler and covered with a whitish down.

The fruit matures in early autumn and consists of a bur covered with stiff spines and inclosing usually one brown nut. The fruit resembles chestnuts but is much smaller, but is sweet and quite edible.

The bark on the trunk is lightly furrowed and has flat ridges broken into light brown loose plates. Chinquapin prefers dry slopes and flats.

The wood is light, hard, strong, coarse-grained and brown in color. This species is prized only because of its nuts, otherwise it is of no commercial importance. The chinquapin is less susceptible to blight than is the chestnut.

Distribution in West Virginia: Not generally distributed. Observed in Mercer, Wyoming, Summers, Fayette, Logan, Boone, Wayne, Monroe, Mingo, Braxton, Gilmer, Pendleton, Greenbrier, Grant and Nicholas Counties.

WHITE OAK

(*Quercus alba* L.)

The white oak may be described as the "Monarch" of West Virginia's hardwoods. It is one of the most valuable of all our timber trees. Within its natural range, which includes the entire eastern half of the United States, the white oak commonly reaches a height of 60 to 100 feet and a diameter of 2 to 3 feet. West Virginia had the distinction of harboring one of the largest white oaks in the United States. This tree was known as the "Mingo White Oak," and stood near the Mingo-Logan county line.



WHITE OAK

The leaves are alternate, simple, 5 to 9 inches long, and are deeply divided into five to nine rounded, finger-like lobes. The young leaves are a soft silvery-gray or a yellow-red while unfolding. They later become green above and paler below. The fruit is an acorn maturing the first year. The nut is $\frac{3}{4}$ to 1 inch long and about one-fourth inclosed in a warty cup.

The bark is thin, ashy-gray, and covered with loose scales or broad plates.

The wood is heavy, strong, hard, tough, close-grained and durable. Its uses are many. Although it grows rather slowly, white oak is valuable for forest, highway, and ornamental planting. The acorns are relished by hogs and other livestock.

Distribution in West Virginia: Common throughout the state except at the highest elevations.

POST OAK

(*Quercus stellata* Wangenh.)

The post oak in winter can easily be mistaken for white oak, but in summer and fall the small acorns and the peculiar lobing of the leaves are characteristics that distinguish it from other species. It is usually a medium sized tree with a rounded crown reaching 50 to 80 feet and a diameter of 1 to 2 feet. It prefers dry, gravelly, or sandy soil.



POST OAK

The bark is rougher and darker than the white oak. The stout young twigs and leaves are coated at first with a thick and light colored fuzz which soon becomes darker and drops away.

The leaves are simple, alternate, usually 4 to 5 inches long, and deeply lobed with broad, rounded, divisions. They are thick, dark green, and leathery.

The fruit is an oval acorn, $\frac{1}{2}$ to 1 inch long, set in a rather small cup which may or may not be stalked.

The wood is heavy, hard, close-grained and durable in contact with the soil. The post oak is not commercially important although it is sometimes used for cross-ties and fence posts, and along with the other oaks for furniture.

Distribution in West Virginia: Found in Marshall, Wirt, Jackson, Putnam, Cabell, Wayne, Kanawha, Raleigh, Summers, Monroe, Gilmer, Marion, Monongalia, Mineral, Grant and Hampshire counties.

CHINQUAPIN OAK

(*Quercus muehlenbergii* Engelm.)

The Chinquapin or yellow oak occurs too infrequently in West Virginia to be classed as a very valuable tree. Its height is from 50 to 75 feet and it attains a diameter of from 2 to 3 feet. The trunk is usually short and sometimes swelled considerably at the base. The crown is round-topped with relatively short ascending branches.



CHINQUAPIN OAK

The leaves are alternate, simple, 4 to 7 inches long and taper at both ends. The margins are coarse with sharp-pointed teeth which somewhat resemble those of the chestnut and chestnut oak. They are bright yellow-green above and pale and hairy beneath.

The fruit is an acorn which matures in the fall. The cup incloses about one-half of the light brown, $\frac{3}{4}$ inch long, nut. The kernel is sweet and more edible than most of the other acorns.

The bark of the trunk is moderately rough with light gray ridges broken into scales. The bark can be said to resemble that of white oak.

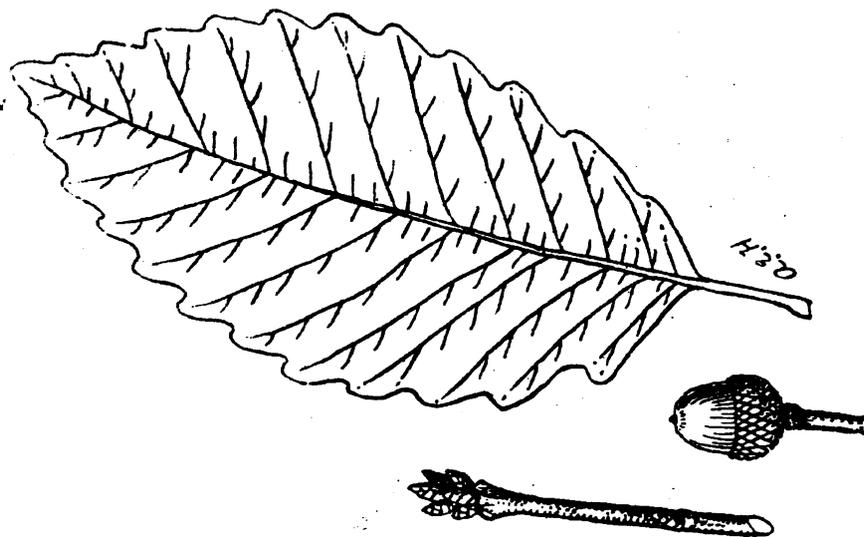
The wood is heavy, hard, strong, close-grained, durable and has a brown color. This tree prefers river banks and limestone hillsides, but occurs too infrequently in the state to be of commercial importance.

Distribution in West Virginia: Observed in Berkeley, Boone, Doddridge, Fayette, Grant, Hardy, Kanawha, Monongalia, Marshall, Morgan, Ohio, Summers and Webster Counties.

CHESTNUT OAK

(*Quercus montana* Willd.)

The chestnut oak is sometimes known as mountain oak or rock oak. It has acquired these names from its leaf resembling that of the chestnut and from its preference for rocky or mountain ridges. It is one of our very common trees in the hilly sections of the state. It reaches a height of 60 to 90 feet with a diameter of 3 to 5 feet. On wind-swept ridges the tree often presents a rugged appearance and is usually short bodied.



CHESTNUT OAK

The bark is dark reddish-brown very rough with deep fissures, and deeply divided into broad rounded leaves. The bark is of high commercial value for the extraction of tannic acid.

The leaves are simple, alternate, often rounded at the point and are irregularly scalloped or wavy on the edge. The edges of the leaves are not as sharp-toothed as chestnut. The fruit is an acorn about 1 inch long, oval, shiny brown and inclosed up to half its length in a cup.

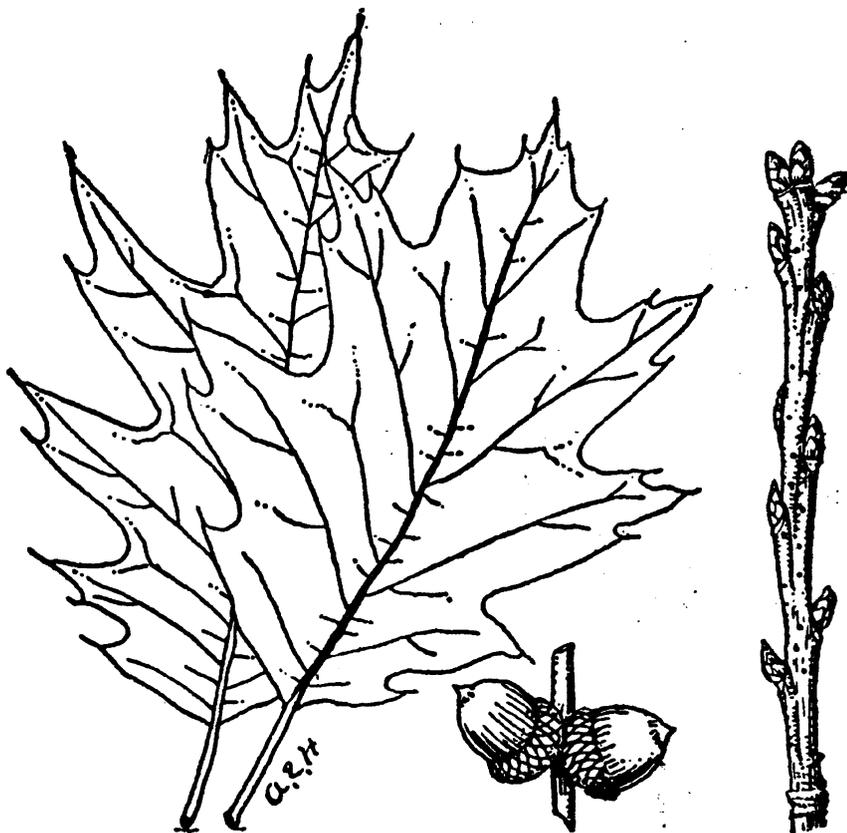
The wood is generally similar to that of the other upland white oaks. It is heavy, hard, strong, and durable. It is extensively cut into cross-ties and heavy timbers for bridge work and other rough construction, and is sometimes used for fence posts and fuel.

Distribution in West Virginia: Common except at elevations of more than three thousand feet.

NORTHERN RED OAK

(*Quercus borealis* Michx. f.)

The red oak commonly occurs throughout the state but is most common and of best quality in the higher mountains. It usually attains a height of 60 to 90 feet and a diameter of 2 to 4 feet, but larger specimens have been found. The red oak is most frequently confused with the black oak; however, it can always be distinguished by the light red inner bark, the shallow-cupped acorns, and the dull green leaves.



RED OAK

The forest grown tree is tall and straight with a clear trunk.

The bark is rather smooth, thick and broken occasionally by shallow fissures into regular surfaced plates.

The leaves are simple, alternate, 5 to 9 inches long, with 5 to 7 toothed, bristle-tipped lobes. The leaves are dull green above and paler below, and turn to a brilliant red in

the fall. The flowers, as in all the oaks, are of two kinds on the same tree; the males in long drooping catkins which open with the leaves, the females are solitary or slightly clustered.

The fruit is a large acorn maturing the second year. The nut is from $\frac{3}{4}$ to 1 inch long, flat at the base with only its base inclosed in the shallow cup.

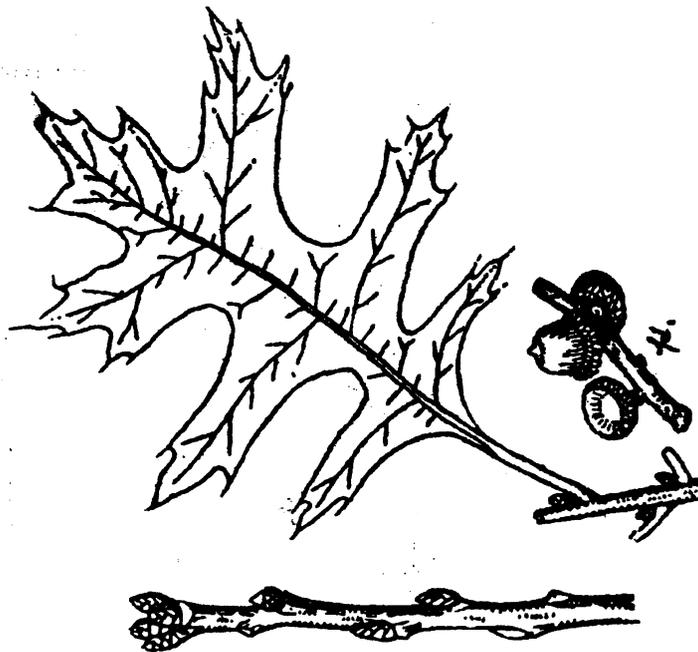
The wood is hard, strong, coarse-grained, with light reddish-brown heartwood. It is extensively sawed into lumber and is capable of a fine finish for furniture and interior work. It is an excellent park or lawn tree and is generally free from insects and forest diseases.

Distribution in West Virginia: Common throughout the state.

PIN OAK

(*Quercus palustris* Muenchh.)

The pin oak is often confused with scarlet oak and resembles the latter very much, but the appearance of the old tree is quite different. The drooping lower branches and the location of the tree most readily distinguish it, and a comparison of its small acorns with the large acorns of the scarlet oak will serve to separate the two species. It grows from 50 to 75 feet high with a diameter of 2 to 3 feet. The trunk is usually straight with a well shaped crown. The lower limbs are usually drooping and curving upward at the tips.



PIN OAK

The bark is not as rough as that of most of the oaks but has shallow fissures and broad flat ridges. The leaves are alternate, simple, much smaller than those of the red oak, with three to seven bristle-tipped lobes. The leaves are dark green and shiny above, pale below and smooth.

The fruit is an acorn maturing in autumn of the second year after the flowers. The cup is thin, shallow, and about $\frac{1}{2}$ inch wide. It incloses about one-fourth of the nut. The kernel is yellowish and bitter.

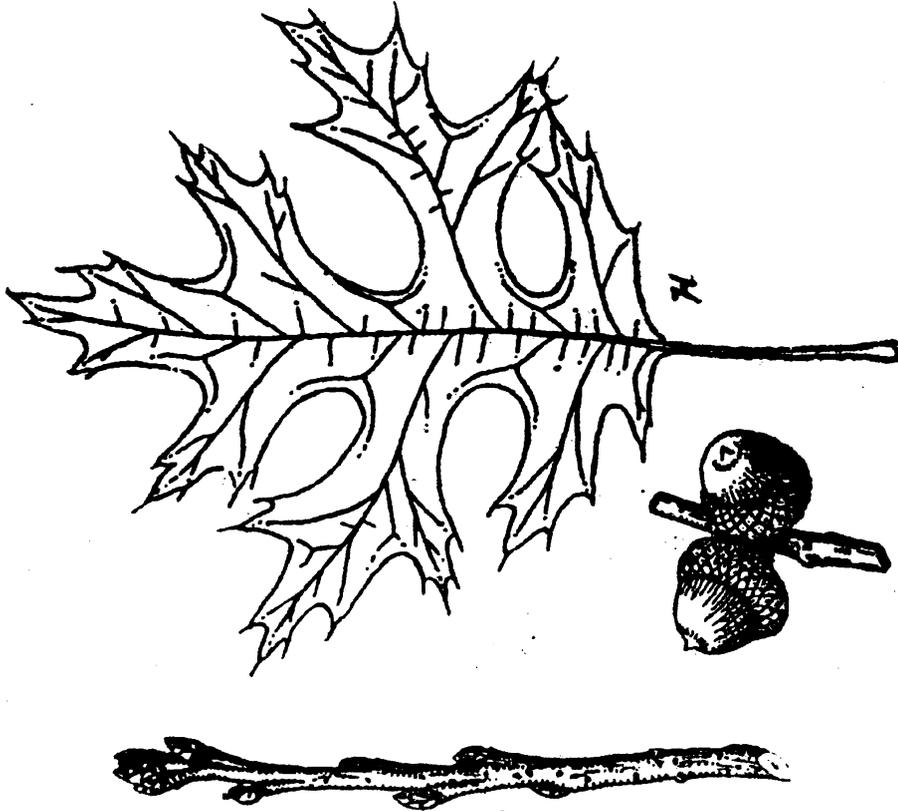
The wood of the pin oak is heavy, hard, strong, and light brown in color. The wood is inferior to that of white oak and red oak. It is an excellent tree for park and ornamental planting.

Distribution in West Virginia: Found throughout the state but local and extremely rare in many sections.

SCARLET OAK

(*Quercus coccinea* Muenchh.)

The scarlet oak, also known as spotted oak, is of less value than the several other oaks, but is desirable for streets and park planting. The tree is especially attractive in the fall when its leaves turn scarlet. It usually reaches a height of 60 to 80 feet with a diameter of 2 or 3 feet.



SCARLET OAK

The bark on the mature tree is divided into ridges, not so rough as those of the black oak and not so flat-topped as those of the red oak. The bark is often spotted with gray.

The leaves are simple, alternate, 3 to 6 inches long, and usually seven lobed. The leaves are bristle-pointed which give the leaves a very deeply cut appearance.

The fruit is an acorn which takes two years to mature. The acorn is $\frac{1}{2}$ to 1 inch long and inclosed in the cup.

The wood is heavy, hard, strong and coarse-grained. The lumber is sometimes sold as red oak and has the same uses but is inferior in quality to the true red oak.

Distribution in West Virginia: Common except at elevations of more than three thousand feet.

BLACK OAK

(*Quercus velutina* Lam.)

The black oak, also locally known as yellow oak and black jack, can always be distinguished by the distinctly yellow inner bark. It sometimes attains a height of 100 feet and 4 feet in diameter. The crown is irregularly shaped and wide with a clear trunk for 20 feet on large trees.



BLACK OAK

The bark on the very young trees is smooth and dark brown, but soon becomes thick and black with deep furrows and rough ridges.

The leaves are alternate, simple, 5 to 10 inches long and very greatly in shape. They may be either shallow or deeply lobed. The leaves are dark green and shiny on the upper surface, pale on the lower and covered with down, with conspicuous rough brown hairs in the forks of the veins.

The fruit is a light brown acorn $\frac{1}{2}$ to 1 inch long and about one-half inclosed in the dark brown scaly cup. The kernal is yellow and very bitter.

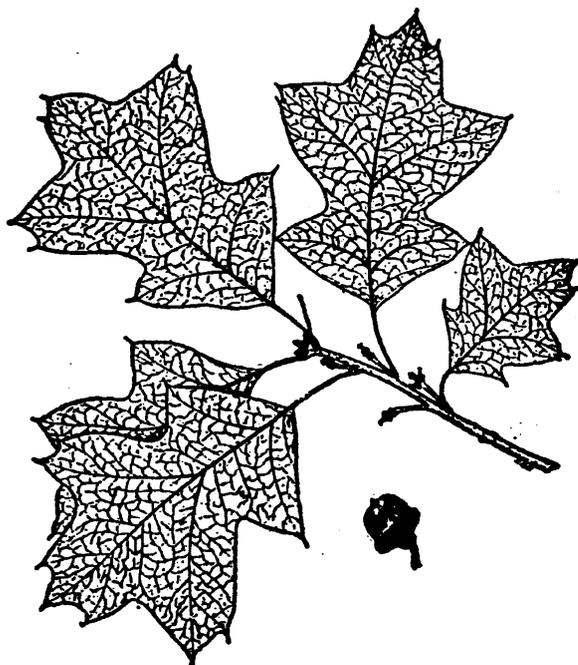
The wood is hard, heavy, strong, coarse-grained and checks easily. The lumber is similar to that of red oak but is inferior in quality to that of red and white oak.

Distribution in West Virginia: Common in most parts of the state.

SCRUB OAK

(*Quercus ilicifolia* Wangenh.)

The scrub oak is usually a shrub in West Virginia but sometimes reaches the size of a small tree. It is often known locally as jack oak or red brush. Its height is from 4 to 20 feet with a diameter of 2 to 6 inches. The trunk is short and branches stiff. The crown is very irregular with a flat-topped head.



SCRUB OAK

The leaves are alternate, simple, 2 to 5 inches long, usually five-lobed with sharp bristle-tipped divisions of the lobes. The leaves are leathery, dark green above and coated below with a dense white down.

The fruit is an acorn which matures in the second autumn after the flowers. The nut is half inclosed in the cup and the kernel is yellow. It is a valuable wildlife food especially for bears and turkeys.

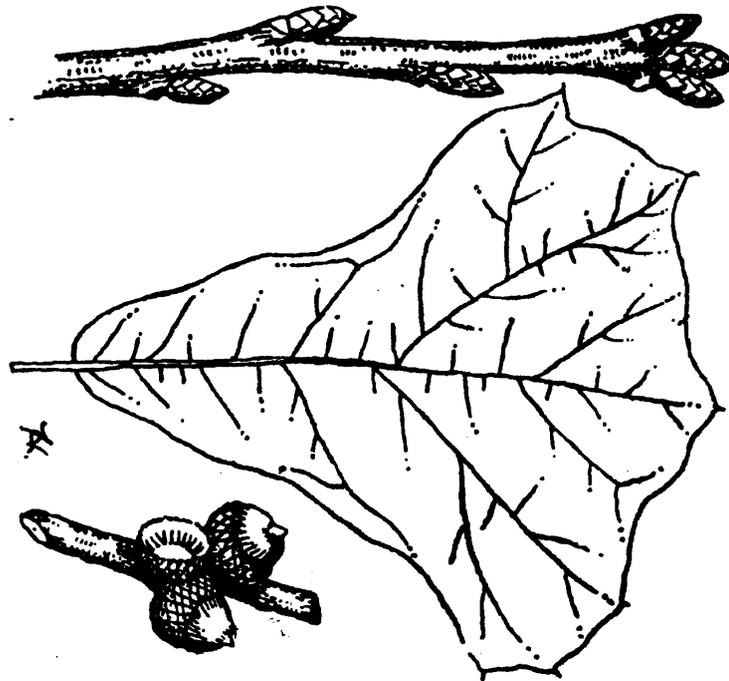
The wood is strong, hard, tough, with a brown colored heartwood. This tree grows on dry soils and mountain tops in dense thickets. It is of no value commercially and is considered by foresters as a weed species.

Distribution in West Virginia: Common along the Allegheny Mountains and in the eastern panhandle counties.

BLACK JACK OAK

(*Quercus marilandica* Muenchh.)

The black jack oak is a very rare and scrubby in growth in West Virginia. It reaches a height of 30 to 50 feet with a diameter of 1 to 1½ feet. The crown is long, narrow and compact with short, stout branches. The bark is rough, very dark, often nearly black, and broken with deep fissures and dark ridges.



BLACK JACK OAK

The leaves are alternate, simple, 6 to 7 inches long and nearly as wide as long. They are rounded and narrow at the base, broadening outward with three broad shallow lobes. They are dark green on the upper surface and lighter underneath. The leaves are one of the easiest methods of identifying this species. They are broadly wedge-shaped.

The fruit is an acorn about $\frac{3}{4}$ inch long, inclosed for half its length or more in light brown cup.

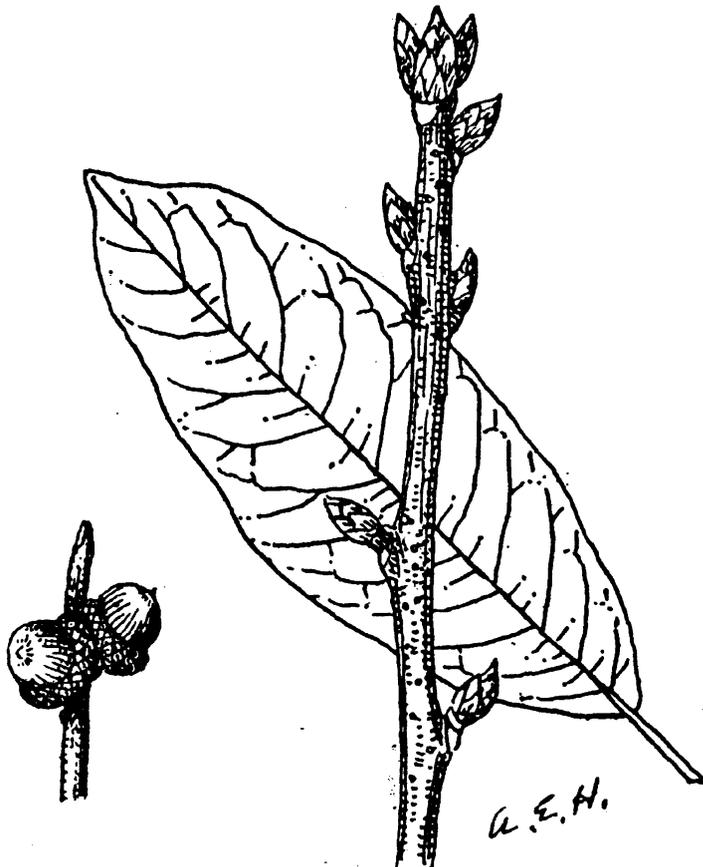
The wood is heavy, hard, and strong. It is of no commercial importance except as fuel wood.

Distribution in West Virginia: Rare, observed in Mineral, Hardy, Cabell, Wayne and Mason counties.

SHINGLE OAK

(*Quercus imbricaria* Michx.)

The shingle oak is one of the most unusual in appearance of all the oaks since the leaves are entirely without lobes. It reaches a height of 50 to 100 feet with a diameter of 1 to 3 feet; however, it seldom reaches this size in West Virginia. The leaves are alternate, simple, 4 to 6 inches long, and the margins are entire.



SHINGLE OAK

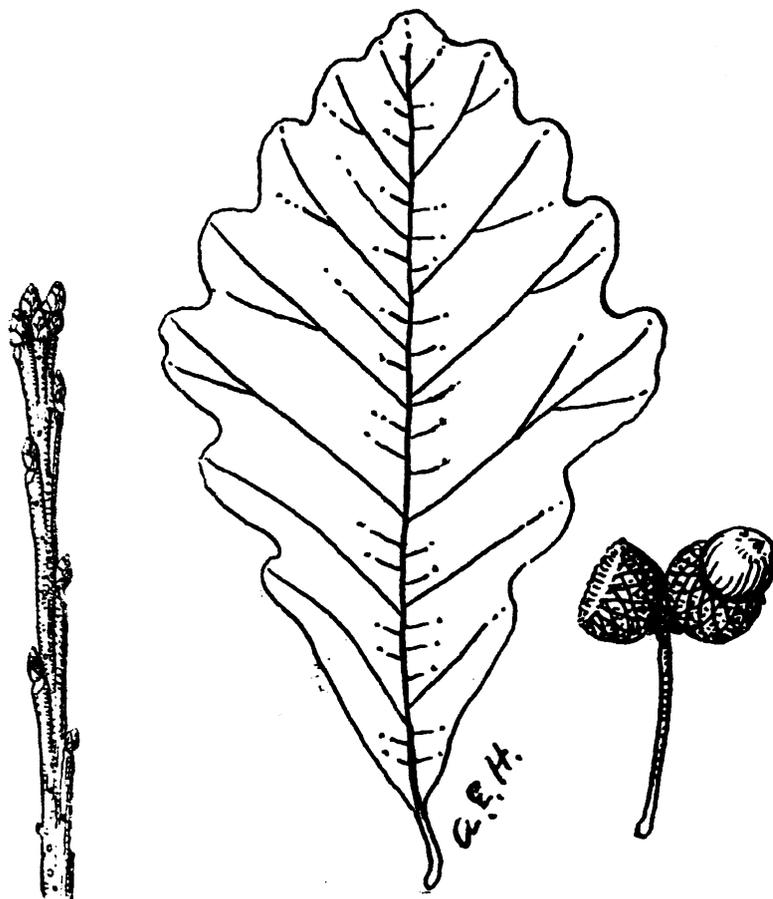
The fruit is an acorn which matures the second autumn after the flowers. The cup is saucer-shaped, brown, and glossy inside. It incloses about one-half of the dark brown nut. The bark has shallow fissures with ridges of brown scales.

The wood is heavy, hard, coarse-grained, and reddish-brown. The tree prefers bottom land along streams and is of no commercial importance in West Virginia. In the southern states it reaches commercial size and importance, and is a beautiful ornamental.

Distribution in West Virginia: Not common except locally. Observed in Barbour, Grant, Hardy, Mason, Monongalia, Morgan, Raleigh, Upshur, Hancock, Jackson, Wayne, Marion and Pocahontas Counties.

SWAMP WHITE OAK (*Quercus bicolor* Willd.)

The swamp white oak can easily be distinguished from the other oaks in winter by the bark ridges on the small branches and the drooping lower limbs. In the summer and fall the leaves are wavy and the acorns are long-temmed. The tree reaches a height of 50 to 75 feet and a diameter of 2 to 3 feet. The crown is usually broad and round-topped.



SWAMP WHITE OAK

The leaves are alternate, simple, 5 to 7 inches long, 3 to 5 inches wide, shallow-lobed, and the margins are thick, firm and smooth.

The fruit matures in autumn after the flowers. The acorns are on pubescent stems 1 to 4 inches long. The cups incloses about one-third of the nut, which is $\frac{3}{4}$ to $1\frac{1}{4}$ inches long.

The bark is rough on the trunk with deep furrows and flat-topped with scaly ridges.

The wood is heavy, hard, strong, tough, and light brown in color. This tree borders swamps and bottom lands along streams. It is of little commercial importance in this state.

Distribution in West Virginia: Uncommon; observed in Hardy, Grant, Morgan, Tyler, Pendleton, Cabell, Raleigh, Mercer, Randolph, Preston, Hampshire and Berkeley Counties.

SOUTHERN RED OAK

(*Quercus falcata Michx.*)

The Southern red oak is a rare, unimportant tree in West Virginia. This is sometimes called Spanish oak. It grows to a height of 60 to 80 feet with a diameter of 2 to 3 feet; however, it seldom reaches these dimensions in West Virginia. The crown is round-topped.



SOUTHERN RED OAK

The leaves are alternate, simple, 6 to 7 inches long, variable in shape, with 3 to 7 toothed bristle-pointed lobes. The terminal lobes are very much elongated and the leaves are dark green in color. The bark on the trunk has shallow fissures and brownish scaly ridges.

The fruit matures the second fall after the flowers. The cup is $\frac{1}{2}$ to $\frac{3}{4}$ inch wide, reddish-brown inside with reddish, pale, pubescent scales. The nut is $\frac{1}{2}$ inch long and pale orange-yellow.

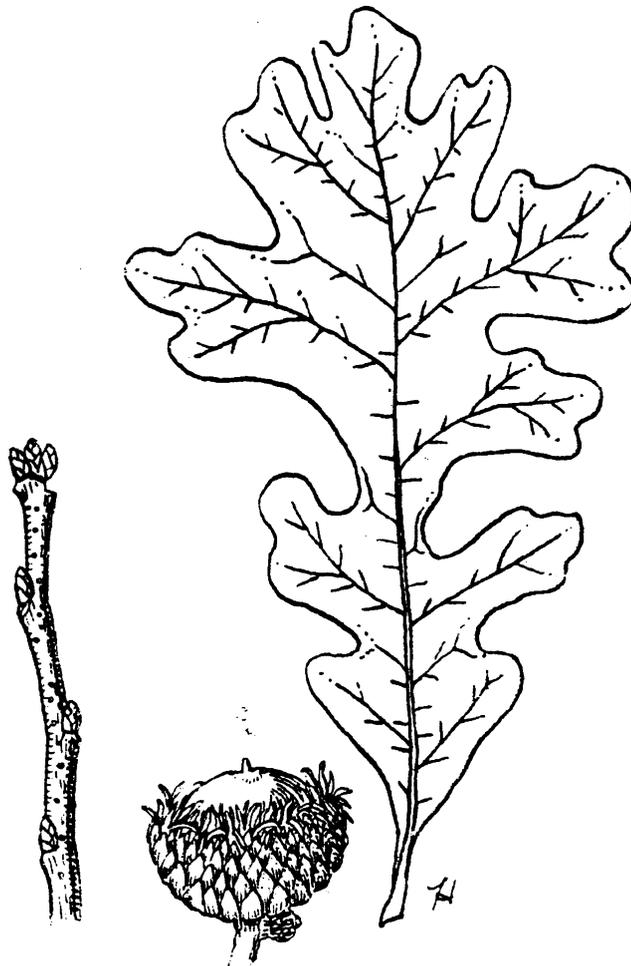
The wood is hard, strong, not durable, coarse-grained and reddish in color with a light sapwood. The wood is comparatively inferior and the tree is considerably less desirable for ornamental purposes than many other species.

Distribution in West Virginia: Rare. Observed along the Great Kanawha River, near Charleston, and in Cabell and Wayne counties.

BUR OAK

(*Quercus macrocarpa* Michx.)

The bur oak is a very large and valuable oak in some of the mid-western states, but is too rare to merit much attention in West Virginia. The beautifully lobed leaves and large acorns are very interesting. It grows to a height of 40 to 75 feet with a diameter of 2 to 4 feet. The trunk is usually short, bearing a well rounded crown.



BUR OAK

The bark is deeply furrowed and similar to that of white oak. It is corky on the twigs. The leaves are alternate, simple, 6 to 12 inches long, wedge-shaped at the base, thick, and firm. They are dark green and glossy with a pale pubescence beneath.

The fruit provides the most distinguishing characteristic of this tree. It consists of a very large acorn which is inclosed in a deep, heavily-fringed cup. It is from this bur-like acorn that the tree gets its common name.

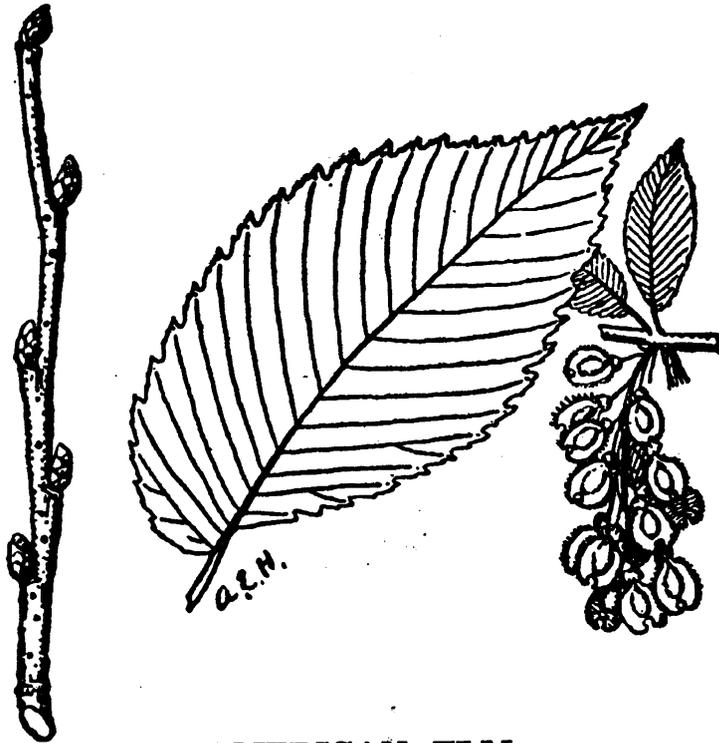
The wood is heavy, hard, strong, close-grained, and durable. The tree is usually found on rich soils near streams.

Distribution in West Virginia: Rare. Observed in Hardy, Grant, Morgan, Jefferson, Berkeley, Hampshire, Pendleton and Mineral counties.

AMERICAN ELM

(*Ulmus americana* L.)

The American elm, or white elm, as it is sometimes called, is one of the most magnificent trees in the United States. It is the famous shade tree of New England but its range, however, extends to the Rocky Mountains and southward to Texas. It reaches an average height of 60 to 70 feet and a diameter of 4 to 5 feet. The crown of the tree provides one of the distinguishing characteristics. It is nearly always fan-shaped and the tree can be readily identified by this characteristic shape. The bark is dark grey divided into irregular thick ridges.



AMERICAN ELM

The leaves are alternate, simple, 4 to 6 inches long, rather thick, somewhat one-sided and doubly-toothed on the margin. They are generally smooth above and downy below.

The flowers are small, greenish and slender-stalked, and appear before the leaves in very early spring. The fruit is light green and winged. The seed portion of the fruit is entirely surrounded by the wing. A deep notch in the end of the wing is distinctive of the species. The seed ripens in the spring and is widely disseminated by the wind.

The wood is heavy, hard, strong, tough, and difficult to split. It is used for wheel hubs, saddle trees, barrel hoops, boats, veneer for baskets and crates. Because of its lovely, graceful form and long life the American elm is always considered one of the most desirable shade trees.

Distribution in West Virginia: Fairly common throughout the state.

SLIPPERY ELM

(*Ulmus fulva* Michx.)

Slippery elm reaches a height of 40 to 80 feet with a diameter of 1 to 2½ feet. The trunk is usually short, the crown open and broad. The bark is thick divided by fissures with large appressed scales. It is brown, tinged with red within. The inner bark is slippery, fragrant, and mucilaginous. The inner bark is one of the distinguished characteristics of the tree. It is sometimes used for medicinal purposes.



SLIPPERY ELM

The leaves are alternate, simple, 5 to 7 inches long, oblique at the base, and abruptly sharp-pointed at the apex. The leaves are rough and hairy on both sides.

The flowers appear in early spring before the leaves. The fruit matures in the spring a few weeks after the flowers. It consists of a small flat seed surrounded by a wing which is nearly circular in outline and smooth.

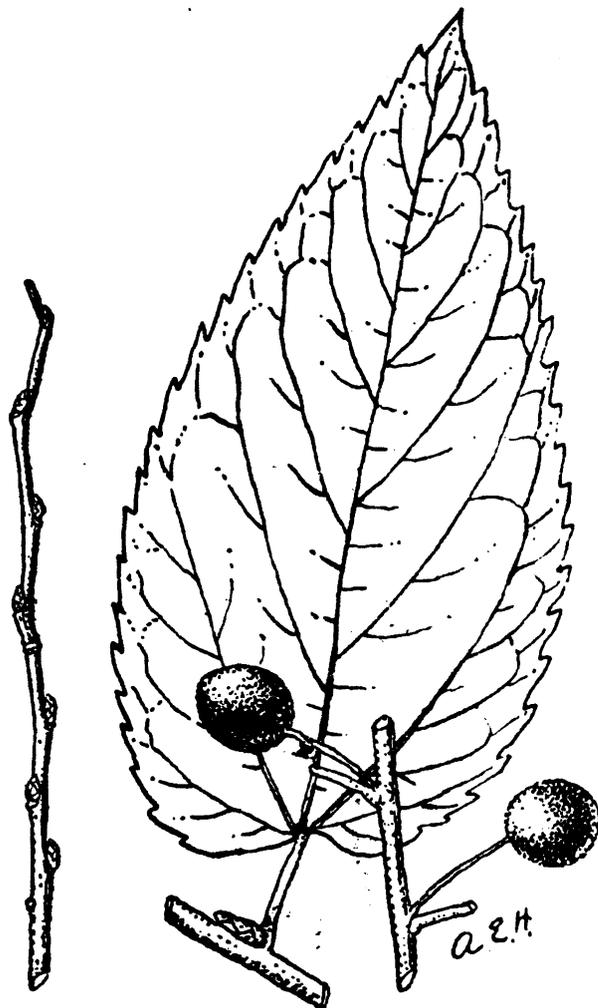
The wood is heavy, hard, strong, and reddish-brown in color. Slippery elm is sometimes called red elm and prefers fertile, rocky soils. It is not an important forest tree.

Distribution in West Virginia: Common locally but rare in many sections. Observed in Barbour, Brooke, Braxton, Clay, Fayette, Grant, Mingo, Monongalia, Ohio, Pocahontas, Putnam, Roane, Tyler, Upshur and Wetzel counties.

HACKBERRY

(*Celtis occidentalis* L.)

The hackberry, also known as the sugarberry and hoop ash, is most easily distinguished by its peculiar warty bark and by the witches' brooms which are usually present. The tree grows to a height of 25 to 80 feet with a diameter up to 30 inches. The crown is spreading or round.



HACKBERRY

The bark is grayish and generally rough. The leaves are simple, ovate, alternate, one-sided, 2 to 4 inches long and the edges are toothed towards the long point.

The flowers are inconspicuous and the two kinds are borne on the same tree. They appear in April or May and are a creamy-green color. The fruit is a round berry and has a thin purplish skin with sweet, yellowish, edible flesh. From this characteristic it gets its common name of sugarberry. The berries frequently hang on the tree most of the winter.

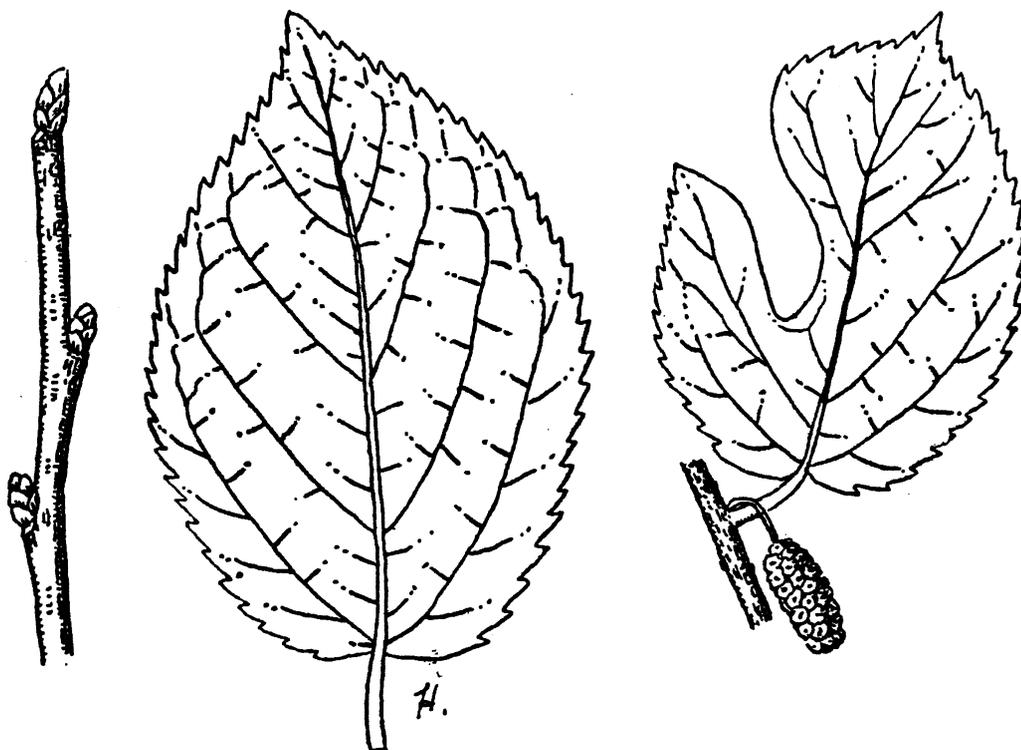
The wood is heavy, rather weak, soft, coarse-grained and decays readily when exposed. It somewhat resembles the wood of ash.

Distribution in West Virginia: Common in some parts of the eastern panhandle and northern panhandle but rare in southern West Virginia.

RED MULBERRY

(*Morus rubra* L.)

Red mulberry is easily distinguished in summer by its irregular leaf forms and peculiar fruits. It is a small tree, seldom growing over 35 feet in height with a diameter of 10 to 20 inches. The trunk is usually straight, short, bearing a well rounded crown.



RED MULBERRY

The bark is rather thin, dark grayish-brown and peels off in long narrow flakes.

The leaves are alternate, thin, rounded or somewhat heart-shaped, toothed, pointed, 3 to 5 inches long, rough hairy above and soft hairy beneath. The leaves are often mitten-shaped or variously lobed.

The flowers are of two kinds on the same or different trees in long drooping catkins. The fruit is dark red or black and resembles a blackberry. The fruit is sweet and edible and is an excellent game and bird food.

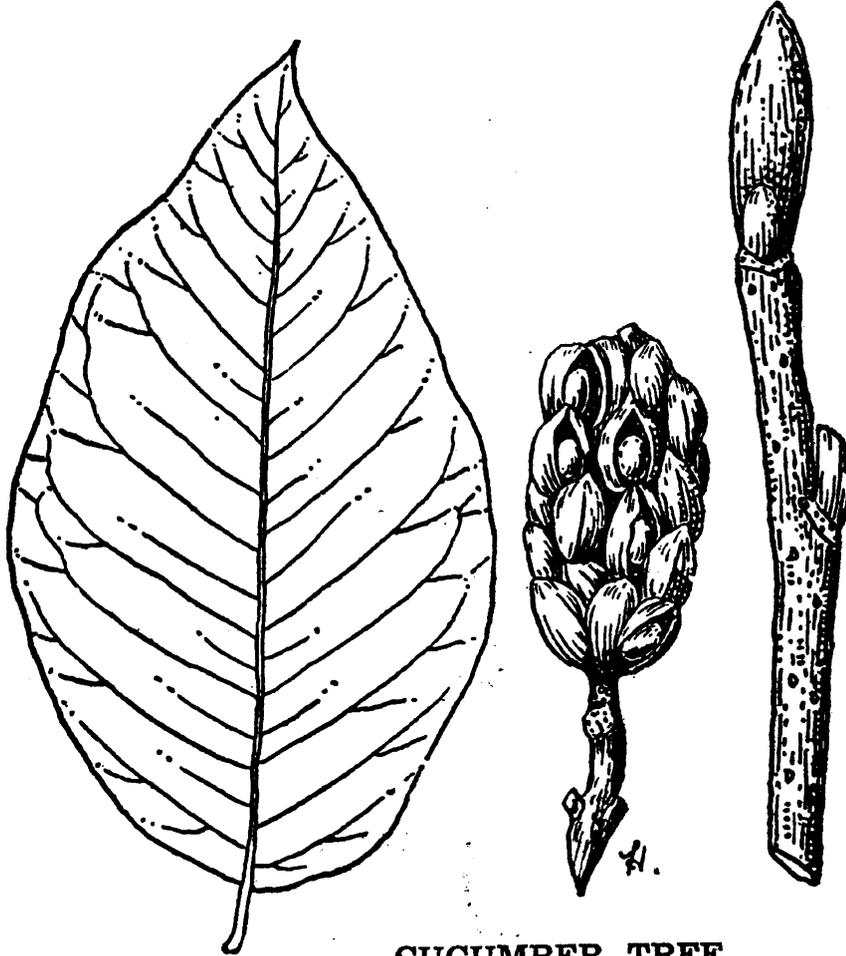
The wood is rather light, soft, not strong, light orange in color, and very durable in contact with the soil. It is chiefly used for fence posts, and is a worthwhile tree for its ability to supply game and bird food.

Distribution in West Virginia: Scattered occasionally throughout the state.

CUCUMBER TREE

(*Magnolia acuminata* L.)

The cucumber tree is a valuable forest and shade tree. It can be distinguished from the other West Virginia magnolias by its smaller leaves and greenish flowers. It attains a height of 90 to 100 feet and a diameter of 2 to 4 feet. The trunk is long, clear, and straight. The crown is usually pyramidal with spreading lower branches.



CUCUMBER TREE

Distribution in West Virginia: Found locally throughout the state.

The bark is aromatic and bitter. It is rather thin, dark brown, furrowed, and broken into thin scales.

The leaves are alternate, simple, ovate, 4 to 12 inches long, entire, smooth above, pale and downy beneath.

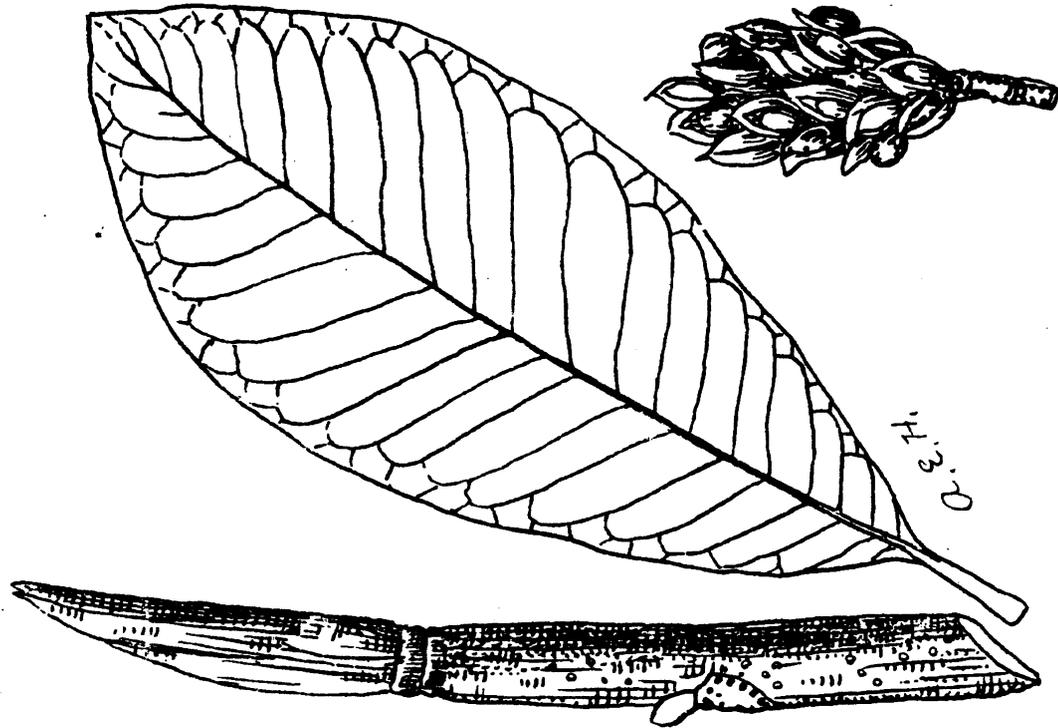
The flowers are single, large, 2½ to 3 inches long, and the six upright petals are whitish-green, tinged with yellow. The fruit is a smooth, dark red cone. It somewhat resembles a small cucumber. The seeds are ½ inch long and covered with a pulpy scarlet coat. The seeds often attract birds, particularly since they hang by thin cords from the open cones.

The wood is light, soft, close-grained, and durable. It is cut and used along with yellow poplar for cabinet and carriage making. It is also quite desirable for roadside and ornamental planting.

UMBRELLA MAGNOLIA

(*Magnolia tripetala* L.)

The umbrella tree, or umbrella magnolia, is chiefly valuable as an ornamental. It is very attractive in the autumn when the bright rose colored fruits are mature. It is not a large tree, growing from 25 to 50 feet in height with a diameter of 10 to 15 inches. The trunk is straight with spreading branches which give it a broad round crown.



UMBRELLA MAGNOLIA

The bark is smooth, light gray, and sometimes roughened by scattered irregular projections.

The leaves are alternately arranged near the ends of the branches in an umbrella-like circle. They are simple and pointed at both ends. The leaves are 12 to 24 inches long with short, stout, petioles and entire leaf margins. The flowers appear in May, are erect and consist of creamy-white centers which are slightly scented. The flowers are usually surrounded by a whorl of leaves.

The fruit matures in the fall and is an oblong cone 2 to 4 inches in length. It is fleshy and composed of numerous rose-colored follicles which liberate small flat red seeds.

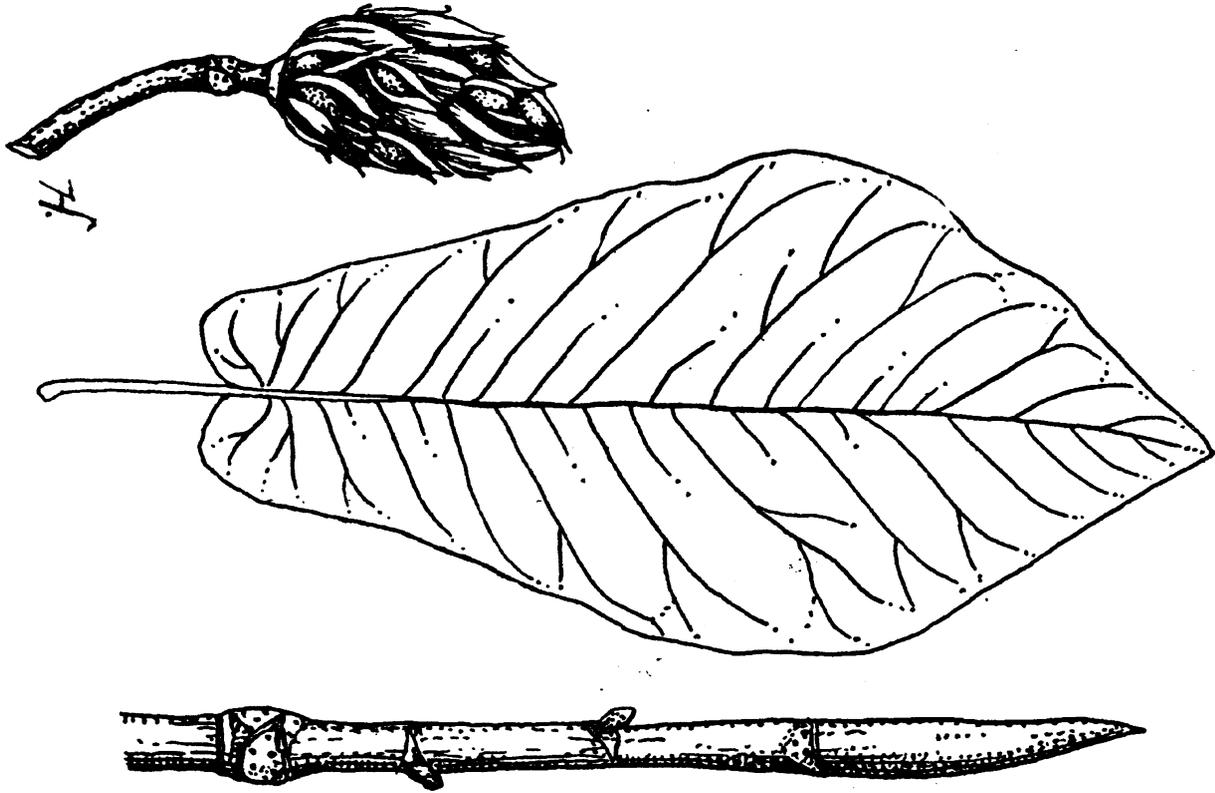
The wood is light, soft, weak, and easily worked. It is of little value commercially. The umbrella tree prefers rich soils of streams and swamps.

Distributions in West Virginia: Not abundant but found along many of the streams in the state, especially in the central and southern counties.

MOUNTAIN MAGNOLIA

(*Magnolia fraseri* Walt.)

The mountain magnolia, sometimes known locally as Wahoo, is a small tree 30 to 40 feet high with a straight leaning or divided trunk.



MOUNTAIN MAGNOLIA

The bark is usually smooth and grayish-brown, and the terminal winter buds are smooth, purple, 1½ to 2 inches long.

The leaves are quite distinctive, being oblong with the lower end narrowed and eared at the base. The leaves are smooth, 10 to 20 inches long, and crowded at the end of the twigs. The flowers are white, fragrant, 8 to 10 inches wide, and solitary.

The fruit is red when mature and shaped like a cucumber. It is 4 to 5 inches long and bears many scarlet seeds.

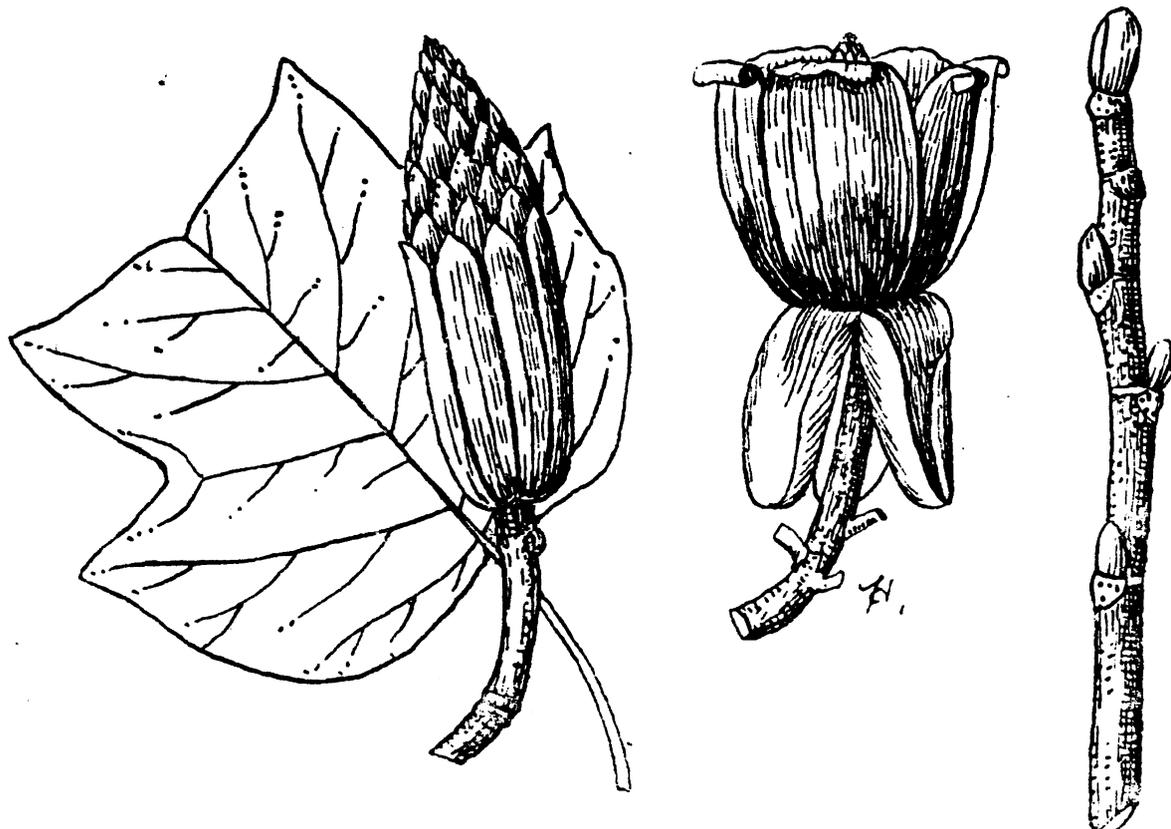
The wood is light, soft, weak and easily worked. The tree is occasionally planted for ornamental purposes but is less hardy than the other magnolias. It prefers borders of streams and rich mountain sides.

Distribution in West Virginia: Fairly common throughout most counties of the state in rich moist sites, especially in the mountain counties.

YELLOW POPLAR

(*Liriodendron tulipifera* L.)

Yellow poplar, or tulip tree, received its name from the yellow color of its heartwood and its beautiful tulip-shaped flowers. It is undoubtedly one of the largest and most valuable hardwood trees of the United States. It occurs commonly throughout West Virginia. It has a height of from 80 to 150 feet and a diameter of 3 to 10 feet. The trunk is long, clear, and straight. The tree has been extensively cut for lumber purposes, but reproduces itself naturally very rapidly and remains one of the most valuable trees in our young second growth forest.



YELLOW POPLAR OR TULIP TREE

The leaves are simple, 4 to 6 inches in length, and four-lobed. They are dark green in summer and turn to a clear yellow in the fall.

The beautiful yellow tulip-shaped flowers appear in May and June. The fruit is a narrow, light brown, upright cone 2 to 3 inches long. The seeds are inclosed in the cones and are provided with a wing which makes them easily distributed by the wind.

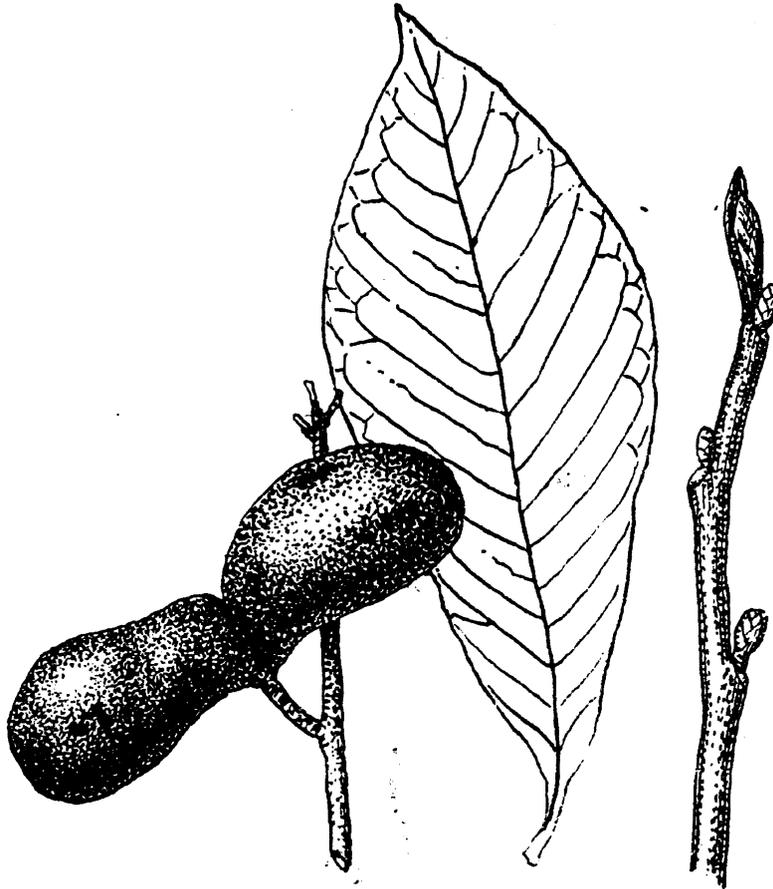
The wood is light, soft, easily worked, light yellow or brown and is extensively cut into lumber for interior and exterior trim. It is also used for veneer and other high grade purposes.

Distribution in West Virginia: Common in all parts of the state except the Spruce belt.

PAWPAW

(*Asimina triloba* (L.) Dual.)

The pawpaw, or custard apple, is not important as a timber tree but is interesting and attractive because of its peculiar fruits. It is very tolerant of shade and is suitable for planting where the production of wood is not the object. The tree ranges in heights from 10 to 50 feet with a diameter of 8 to 12 inches. The trunk is usually straight and slender, bearing a broad or restricted crown of straight branches.



PAWPAW

The leaves are alternate, simple, thin, pointed and 4 to 12 inches long. They have entire margins and are smooth except when young.

The flowers appear in April and May with the leaves, are scattered along the twigs, and are dark reddish-purple. The fruit matures in early autumn. It is cylindrical in shape, resembling a banana, and is about 3 to 5 inches long. It has a thin greenish-yellow skin inclosing a yellow pulpy edible mass through which are scattered several brown shiny seeds.

The bark is smooth, brown, thin, and close. Pawpaw prefers moist soils along streams, but also grows well on loamy slopes.

The wood is light, soft, coarse-grained and brown with yellowish sap wood. It is of no commercial importance.

Distribution in West Virginia: Locally distributed throughout the state.

SASSAFRAS

(*Sassafras albidum* (Nutt.) Nees)

Sassafras is a small tree, usually not over a foot in diameter or 40 feet in height. Larger specimens have been found but they are not common. The tree is common throughout the state on dry soils and is one of the first broad-leaved trees to come in on old abandoned fields. The bark of the trunk is thick, red-brown, and deeply furrowed. The bark of the twigs is a bright glossy green.



SASSAFRAS

The leaves are alternate, simple and entire. Sassafras is one of the few trees having leaves of widely different shapes on the same tree. Some of the leaves have one lobe resembling the thumb of a mitten, others are divided into three lobes, and still other leaves are entire.

The flowers are clustered, greenish-yellow, and open with the first unfurling of the leaves. The fruit is an oblong dark blue or black berry. It contains one seed and is surrounded at the base by a small orange-red cup at the end of a scarlet stalk.

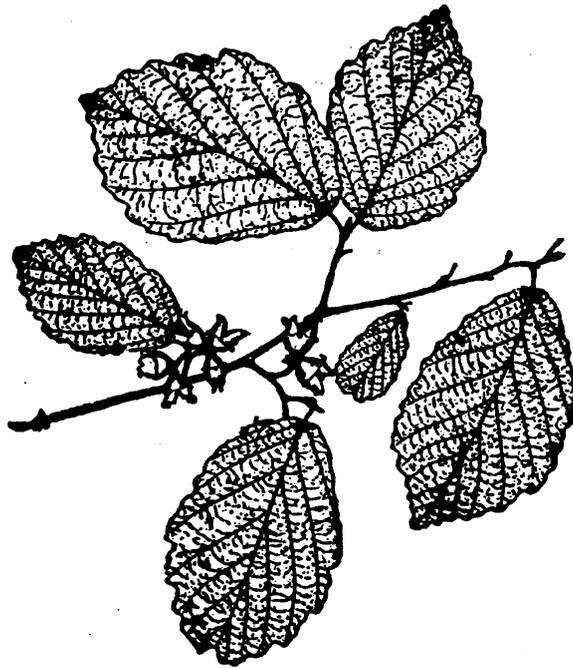
The wood is light, soft, weak, brittle, and durable in the soil. It is used sometimes for posts, cooperage, and for ox yokes. The bark of the roots yields the very aromatic oil of sassafras which is used in flavoring candies and for making tea.

Distribution in West Virginia: Common in nearly all sections of the state.

WITCH HAZEL

(*Hamamelis virginiana* L.)

This small tree, common throughout the state, is interesting because it blossoms in the fall during the time that its fruit is maturing. The blossoms often persist even after snow falls. It is not important for forestry uses and is seldom planted for any purpose. It grows to a height of 25 feet and a diameter of 10 inches. The trunk is short, inclined, often bearing an irregular crown.



WITCH HAZEL

The bark is smooth or scaly, thin, light brown, and blotched.

The leaves are alternate, simple, oval, 4 to 6 inches long, rounded at the tips, wavy-toothed and are somewhat downy when young.

The flowers appear in October and November and have four slender strap-shaped, yellow petals.

The fruit ripens in the Autumn from the flowers of the previous year. The fruit is a two-celled, woody, nut-like pod, $\frac{1}{2}$ inch long, containing black seeds which are propelled a distance of several feet when the buds burst open.

The wood is heavy, hard, close-grained, light brown in color and of no commercial value. The tree slightly resembles black alder in appearance.

Distribution in West Virginia: Common throughout the state.

SWEET GUM

(*Liquidambar styraciflua* L.)

The sweet gum is known by a variety of common names. Those most often used are red gum, sap gum and star gum. It is a large valuable forest tree as well as a beautiful ornamental. The bark is a light gray roughened by corky scales, later becoming deeply furrowed. After the second year the twigs often develop two corky-winged projections on the bark.



SWEET GUM

The leaves are alternate, simple, 3 to 5 inches long, irregularly star-shaped, with five lobes. The leaf is very aromatic and its coloring is brilliant in the fall, ranging from pale yellow to deep bronze.

The fruit resembles the balls on the sycamore. The fruit is made of many capsules with projecting spines and hangs to the tree late into winter.

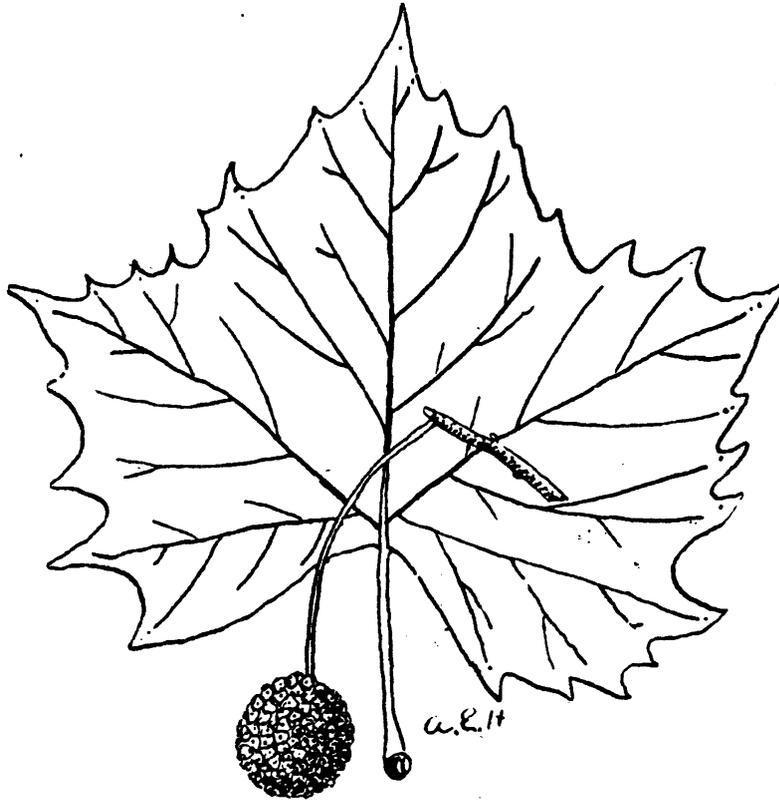
The wood is heavy, moderately hard, close-grained and reddish-brown. It is said that the wood has a greater variety of uses than any other single species in the United States. It is used extensively for flooring and veneers of all kinds, and is often sold as imitation mahogany and walnut. The tree is not particularly valuable in this state because of its restricted range. It is of greatest importance in the southern states.

Distribution in West Virginia: Uncommon in the state except along the following rivers: Great Kanawha, Elk, Greenbrier, New, Gauley and Tug.

AMERICAN SYCAMORE

(*Platanus occidentalis* L.)

The sycamore, often called buttonwood or plane tree, is sometimes considered the largest hardwood tree in North America. It occurs throughout the state but prefers moist soils of stream borders. In maturity it occasionally attains a height of 140 to 170 feet and a diameter of 10 to 11 feet.



SYCAMORE

The bark of the sycamore is a characteristic feature and distinguishes it from all other trees. On the young trunk and large limbs it is very smooth and greenish-gray in color. On the mature trees the bark is covered with broad curling scales which are shed off exposing the smooth white surface beneath. The sycamore can be identified by the bark as far as one can see it.

The leaves are simple, alternate, 4 to 7 inches long and light green in color. The base of the leaf is hollow, and in falling off exposes the winter bud.

The fruit is a ball about 1 inch in diameter, hangs to the tree throughout the winter, breaks up during the spring and the small seeds are widely scattered by the wind.

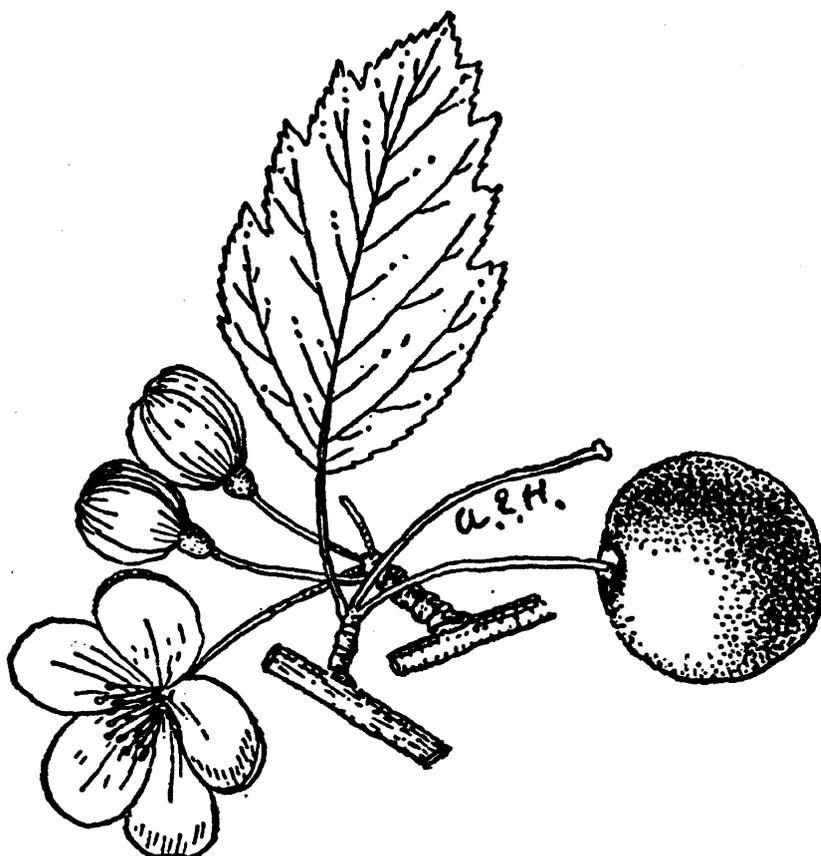
The wood is hard, moderately strong, but decays rapidly in the ground. It has a beautiful grain and is used for butcher's blocks, furniture and interior finish.

Distribution in West Virginia: Throughout the state.

SWEET CRAB APPLE

(*Malus coronaria* L. Mill.)

The crab apple is well known on account of its fragrant rosy-white blossoms which appear in May. This tree attains a height of 15 to 25 feet and a diameter of 10 to 14 inches. The trunk is short and usually armed with many stubby thorn-like branches.



SWEET CRAB APPLE

The bark is roughened with flat scaly ridges, brownish-gray or reddish.

The leaves are alternate, simple, 3 to 4 inches long, serrate, dark green and paler beneath.

The fruit matures in the fall and is a depressed round apple. It is yellowish-green in color, fragrant and bitter. The crab apple prefers moist soil and is usually found in thickets, in open woods, and old fields.

The wood is heavy, hard, light reddish-brown and is sometimes used for tool handles.

Distribution in West Virginia: Common in most counties, especially in the central and northern parts of the state. Less common in Boone, Logan, Mingo and other parts of the state south of the Kanawha River.

AMERICAN MOUNTAIN ASH

(*Sorbus americana* Marsh.)

This tree has no commercial value, being rare and of small size in West Virginia. It attains a height of from 20 to 30 feet and a diameter of 8 to 12 inches. The trunk is short, supporting a round-topped crown.



MOUNTAIN ASH

The leaves are alternate, compound, 6 to 9 inches long, with 9 to 17 leaflets. The leaflets are sharply serrate, dark green above and paler beneath.

The bark is smooth or slightly roughened and light gray.

The flowers appear in May and are white. The fruit matures in autumn and persists on the tree throughout the winter. It is a berry, bright red, acid and in large flat-topped clusters.

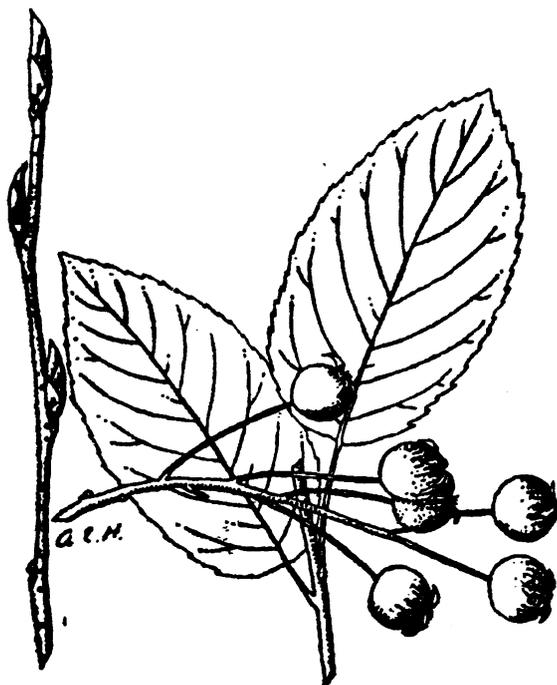
The wood is light, close-grained, soft, weak, and light brown in color. Its form, its foliage, its flowers and bright persistent fruits make it desirable only for ornamental planting and possibly as a source of food for game and birds.

Distribution in West Virginia: Confined to elevations above two thousand feet. Observed in Pendleton, Pocahontas, Preston, Randolph, Tucker and Fayette counties.

DOWNY SERVICEBERRY

(*Amelanchier arborea* (Michx. f.) Fern.)

The serviceberry derived its common name from an old custom in the Southern Appalachians where the circuit rider preacher held funeral services each year for all of those persons who had died in his circuit. These funeral services were held in the spring, just at the time when this tree blossomed. It is known also as shad bush, Juneberry and Sarvice. It is a small tree, seldom growing over 40 feet in height with a diameter of 4 to 16 inches.



SERVICEBERRY

The leaves are alternate, simple, 3 to 4 inches long and finely serrate.

The flowers appear in early spring and are white. Serviceberry is the first of our forest trees to blossom in spring and their tiny white flowers dot the mountain sides even when the snow covers the ground.

The fruit ripens in July, is berry-like, red to purple, sweet and edible. It is a common sight to see hundreds of birds feeding on the fruit of one tree.

The bark is smooth, with narrow scalp ridges on old trees.

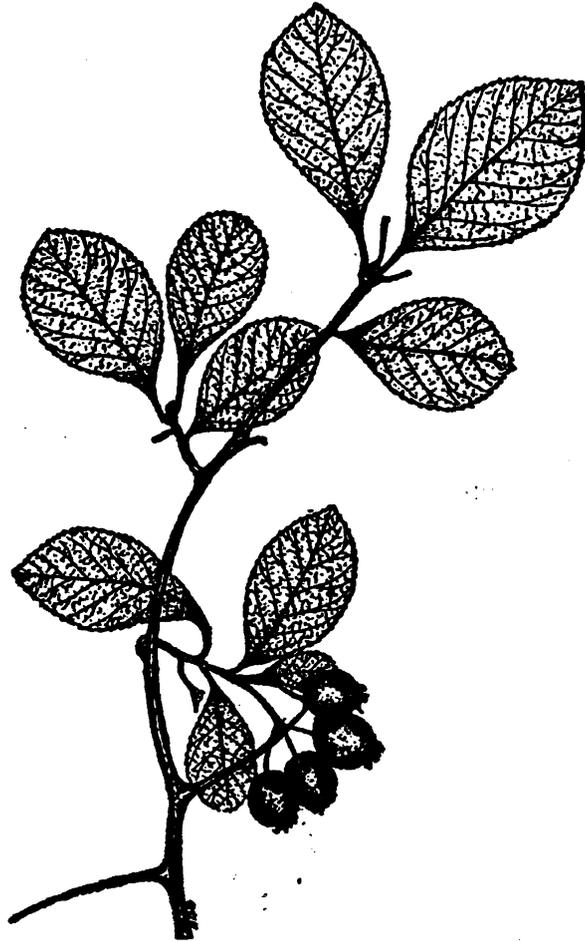
The wood is heavy, hard, strong, close-grained, warps and checks easily.

Distribution in West Virginia: Common in most parts of the state.

COCKSPUR THORN

(*Crataegus crus-galli* L.)

There are many varieties and species of hawthorns in West Virginia. Most of them are shrubby and of little or no importance. Only two of the hawthorns are described in this handbook. The cockspur thorn reaches a height of 10 to 25 feet and a diameter of 6 to 12 inches. Its crown is broad and flat-topped.



COCKSPUR THORN

The leaves are alternate, simple, 1 to 3 inches long, sharply serrate and dark green in color. The flowers appear in June and are white.

The fruit matures in the fall and consists of an ovoid, greenish to dull red, pome. It contains usually two nutlets.

The bark is grayish-brown, roughened on old trees by small scales. It is covered with sharp thorns.

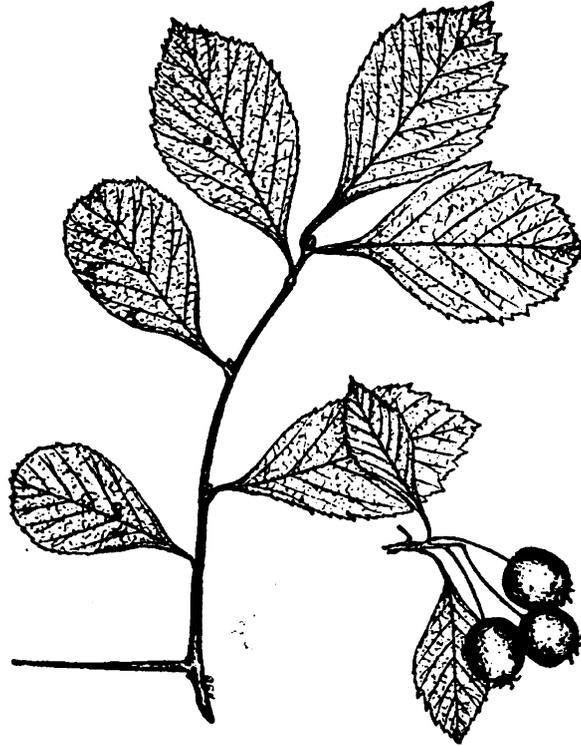
The wood is heavy, hard, close-grained and reddish-brown.

Distribution in West Virginia: One of the most common hawthorns. Found throughout the state.

DOTTED THORN

(*Crataegus punctata* Jacq.)

The dotted thorn can be identified by the large red or yellow fruit which gives it a very attractive appearance in the fall. The tree grows to 35 feet in height with a diameter of 8 to 14 inches. The trunk is thick and short, and the crown is very broad and flat-topped.



DOTTED THORN

The bark is gray with thin scales on old trunks and the branches are covered with straight thorns which are $1\frac{1}{2}$ to $2\frac{3}{4}$ inches long.

The leaves are alternate, simple, tapering at the base, almost blunt-pointed at the apex and irregularly serrate or sometimes lobed.

The flowers appear in May and June and are white. The fruit ripens in the fall.

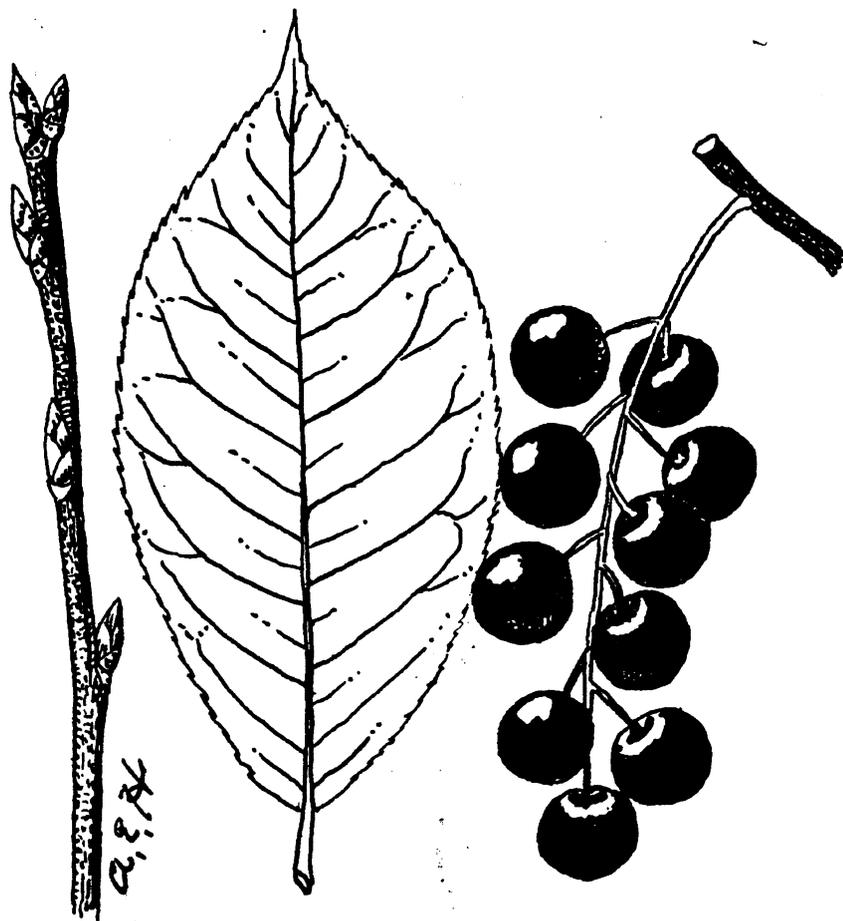
The wood is heavy, hard, and close-grained. This tree prefers rich sandy soils of mountain borders and grows in thickets. It is a common tree at high elevations and is of no importance commercially. The fruit is eaten by the ruffed grouse and other birds, and is sometimes used for making jelly.

Distribution in West Virginia: A common hawthorn, especially at elevations above two thousand feet, often growing in dense thicket.

COMMON CHOKECHERRY

(*Prunus virginiana* L.)

The chokecherry is not a timber tree but is attractive when growing wild or planted. Its height is from 15 to 30 feet and its diameter is 6 to 12 inches. The trunk is usually short with a rounded crown.



CHOKECHERRY

The leaves are alternate, simple, 2 to 4 inches long, oval, very sharply serrate with slender teeth and dull green in color. The fruit ripens in late summer is a globular dark crimson drupe, and is borne on short stalks in drooping clusters.

The bark is smooth, dark gray, somewhat roughened on old trunks by shallow fissures. The inner bark has a very disagreeable odor.

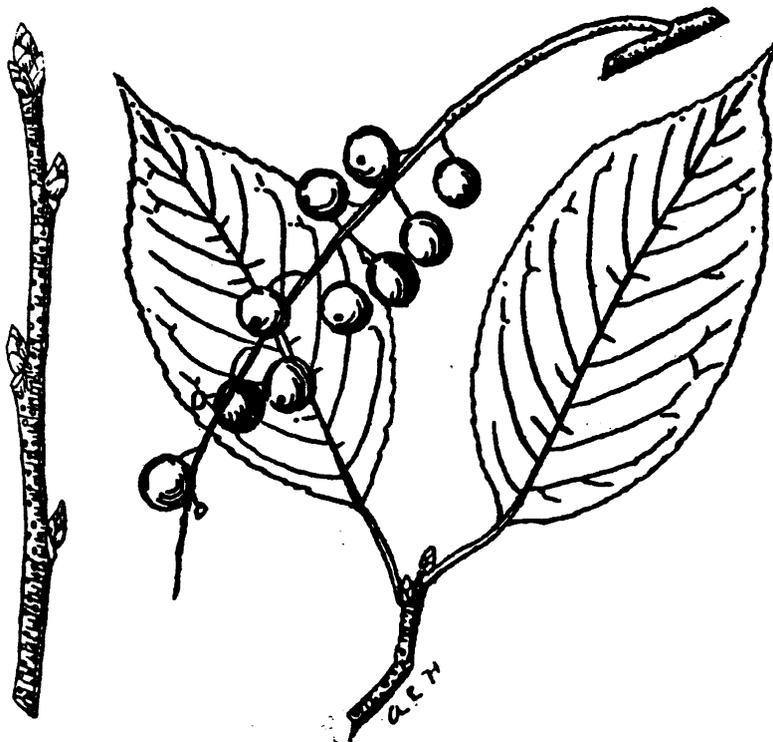
The wood is heavy, hard, close-grained, and light brown in color. Choke cherry prefers damp borders of streams and thickets. It is rare in most sections. Scattered trees grow at high elevations.

Distribution in West Virginia: Fairly abundant in the mountainous counties.

BLACK CHERRY

(*Prunus serotina* Ehrh.)

Wild cherry is a medium sized tree attaining 70 feet in height and 1 to 3 feet in diameter. It grows best in the high mountains. The forest grown trees have long clear trunks with little taper.



BLACK CHERRY

The bark on branches and young trunks is smooth and bright reddish-brown, marked by conspicuous white horizontal lines. The bark has a bitter almond taste. On older trees the bark becomes roughened by broken plates.

The leaves are alternate, simple, with edges broken by many fine incurved teeth.

The fruit is dull purplish-black about as large as a pea and is borne in long hanging clusters. It ripens in late summer, is edible and is often used in the making of wine.

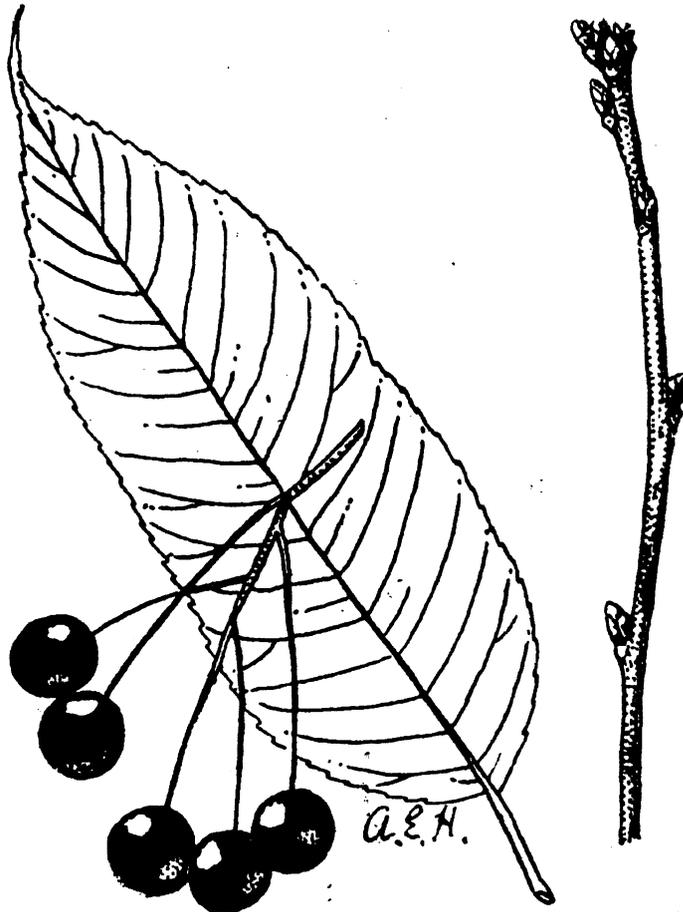
The wood is reddish-brown with yellowish sap wood, moderately heavy, hard, strong, and fine-grained. It does not warp or split in seasoning. The wood is very valuable for its luster and color, and is used for furniture, interior finish, tools and handles. With the exception of black walnut, cherry lumber has a greater unit value than any other hardwood in the United States.

Distribution in West Virginia: Common in most parts of the state.

FIRE CHERRY

(*Prunus pennsylvanica* L. f.)

Fire cherry and bird cherry are two common names of this tree. It is also known as pin cherry. The tree is of little or no importance other than as a soil cover tree. It comes in quickly on areas which have been burned by fire, and on which the seeds have been carried and dropped by birds. It grows to a height of 35 feet and 12 inches in diameter with a straight trunk and narrow crown.



FIRE CHERRY

The leaves are alternate, simple, 3 to 5 inches long, pointed and finely serrate. They are bright green above and paler underneath.

The bark is smooth or somewhat roughened by loose papery plates and is reddish-brown.

The flowers appear in May and are white on slender stalks. The fruit ripens in July and persists until fall. It consists of a globular drupe which is bright red, thick-skinned and sour.

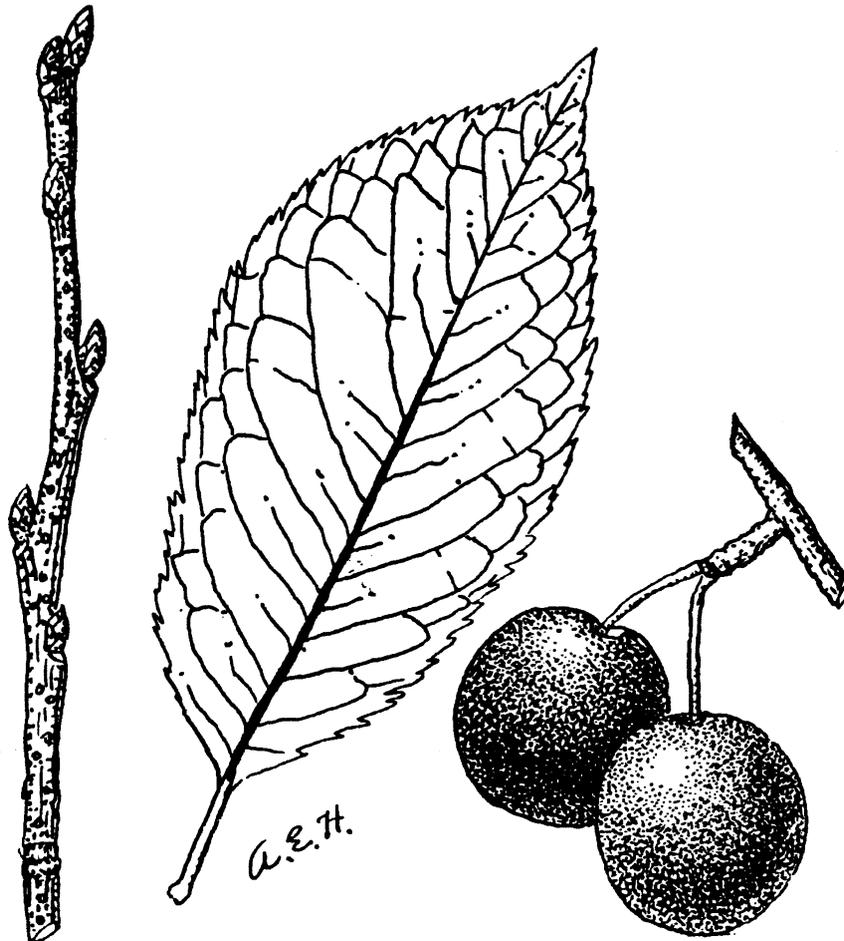
The wood is light, soft, close-grained and light brown in color. This tree prefers sandy soils of burned over mountain sides and flats.

Distribution in West Virginia: Restricted to the mountains.

AMERICAN WILD PLUM

(*Prunus americana* Marsh.)

The wild plum is found in dense thickets in some of our upland swamps where it produces large crops of fruit. It is of little importance commercially but is sometimes used as a stalk upon which domestic plums are grafted. The tree attains a height of 25 feet with a diameter of 6 to 12 inches. The trunk is short and supports a wide crown of horizontal and drooping branches.



WILD PLUM

The leaves are alternate, simple, 2 to 4 inches long, taper-pointed and doubly serrate. They are firm and dark green in color.

The flowers appear in May with the leaves, are 1 inch wide, and white. The fruit ripens in early fall and is a red drupe about 1 inch in diameter. The fruit is sweet and edible.

The bark is grayish-brown and rough on old trunks with thin flat plates.

The wood is hard, heavy, strong, close-grained and red-brown.

Distribution in West Virginia: Locally common throughout the state.

HONEY LOCUST

(*Gleditsia triacanthos* L.)

The honey locust is not very common in any part of West Virginia. It thrives best on river bottoms, but sometimes grows in other situations. It sometimes occurs in the forest but more commonly in corners and waste places beside roads and fields. It reaches a diameter of 30 inches and a height of 75 feet.



HONEY LOCUST

The bark on old trees is dark gray and is divided into thin brown scales. The thorns are very strong, straight, brown, sharp and long. The thorns alone serve to identify this tree quite easily.

The leaf is pinnate, or feather-like, with 18 to 28 leaflets. It is singly or doubly compound.

The fruit is a pod 10 to 18 inches long, 1 to 1½ inches wide, flat, dark-brown and contains yellow, sweetish, pulp and seeds. The pods are eaten by many animals, and as the seeds are hard to digest many are thus widely scattered from the parent tree.

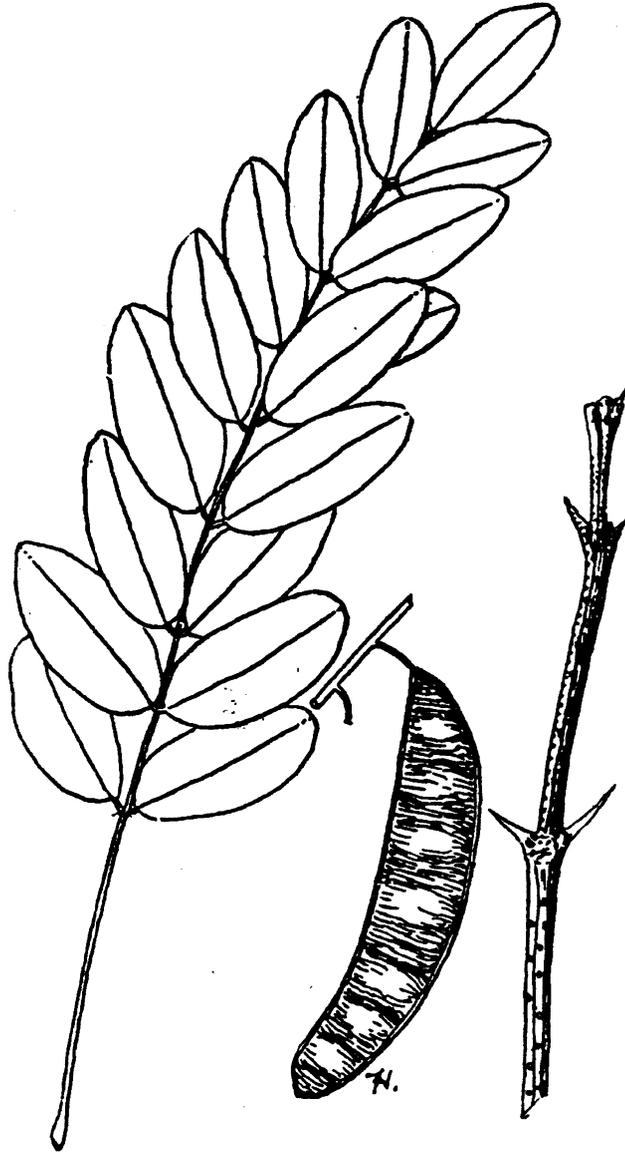
The wood is heavy, hard, strong, durable in contact with the soil and is used for fence posts; however, the tree is too rare in West Virginia to be of any commercial importance.

Distribution in West Virginia: Found scattered in many parts of the state but less frequent in the counties west of the Alleghenies and in the eastern panhandle.

BLACK LOCUST

(*Robinia pseudo-acacia*, L.)

The black locust, sometimes called yellow locust, occurs throughout the entire state in all soils and conditions of moisture except in swamps. It attains a height of 50 to 80 feet and a diameter of 30 inches. The twigs and branches are armed with straight or slightly curved sharp spines. The bark is dark brown and divides into strips as the tree grows older.



BLACK LOCUST

The leaves are compound, alternate, 8 to 14 inches long, with 7 to 21 leaflets.

The flowers are fragrant, white or cream colored and appear in early spring in graceful racemes. The fruit is a pod from 3 to 5 inches long, containing 4 to 8 hard seeds which ripen late in the fall. The pods split open during the winter, depositing the seeds.

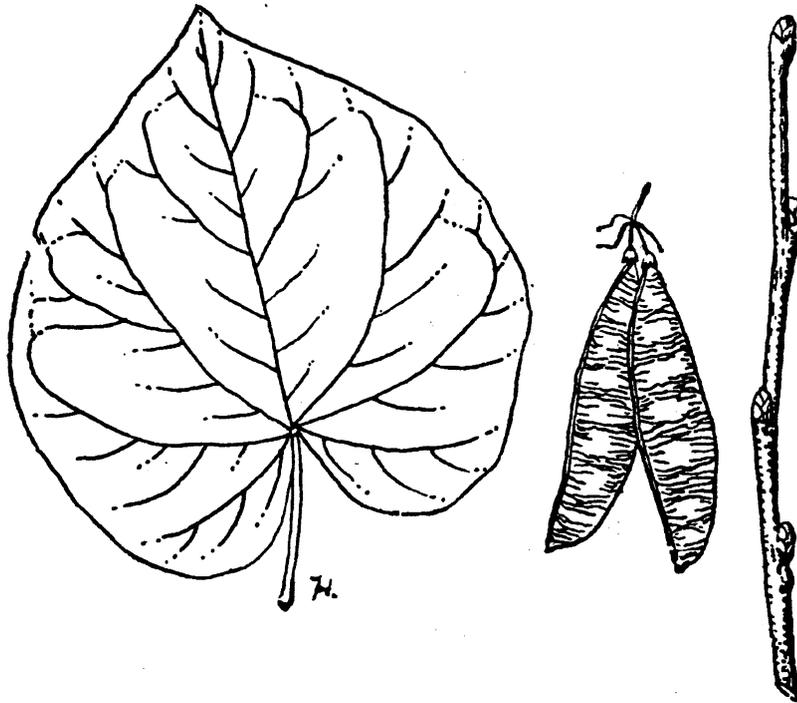
The wood is yellow in color, coarse-grained, very heavy, very hard, strong, and very durable. It is quite a rapid grower, adds fertility wherever it grows, is unsurpassed for fence posts and is being planted in West Virginia extensively for mine props and for prevention of soil erosion.

Distribution in West Virginia: Common in most sections of the state.

EASTERN RED BUD

(Cercis canadensis L.)

The red bud, sometimes called Judas tree, from its oriental relative of that name, is a small tree occurring throughout West Virginia. It attains a height of 40 feet with a diameter of 6 to 12 inches. The trunk is usually inclined and the crown broad, open, and shallow.



EASTERN RED BUD

The leaves are alternate, heart-shaped, entire, 3 to 5 inches long, glossy green and turn to a bright clear yellow in the fall.

The bright purplish-red, pea-shaped, flowers appear in April before the leaves and are quite conspicuous in the spring.

The fruit is an oblong, flattened, pod which incloses many seeds. The pods often hang to the trees most of the winter.

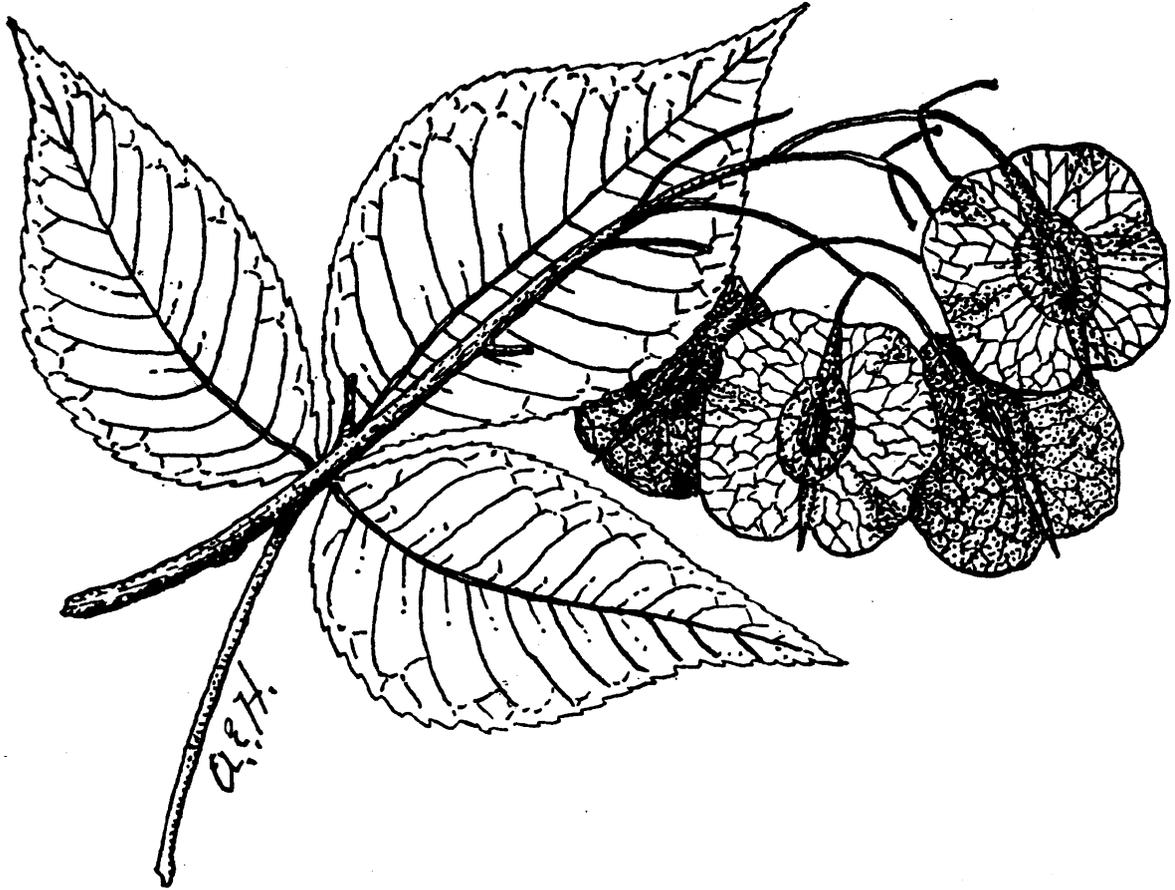
The wood is heavy, hard, not strong, rich dark brown in color, and of no commercial importance. The tree is chiefly ornamental, and for that purpose might be planted more generally throughout the state.

Distribution in West Virginia: Abundant throughout the state except at elevations above three thousand feet.

COMMON HOPTREE

(*Ptelea trifoliata* L.)

This is a small shrubby tree, useful only for ornamental planting. It is very interesting and attractive for the above purpose. It seldom grows more than 25 feet in height.



HOPTREE

The leaves are alternate, with three leaflets which are entire, ovate, pointed, and hang downward when young. The flowers are greenish-white arranged in compound terminal cymes. The fruit is a two-celled, two-seeded, nearly circular samara. It is winged completely around the seed and is quite bitter. The fruit is sometimes used as a substitute for hops, from whence comes its common name.

The bark is smooth, light brownish-gray. The tree prefers sandy soils of river banks, but is quite rare and unimportant throughout the state.

Distribution in West Virginia: Rare. Observed in Summers, Morgan, Berkeley, Hampshire, Jefferson and Raleigh counties.

STAGHORN SUMACH

(*Rhus typhina* L.)

Staghorn sumach is a small tree or shrub sometimes reaching a height of 20 feet and a diameter of 10 inches. The trunk is short and bears a broad crown of ascending branches.



STAGHORN SUMACH

The leaves are alternate, compound, 16 to 24 inches long, and with 11 to 31 leaflets. The leaflets are oblong, 2 to 5 inches long, pointed, serrate, and dark green.

The flowers appear in May and June and are arranged in yellowish-green compact panicles. The fruit matures in late summer and persists throughout the winter. It consists of numerous dry drupes which aggregate in a compact pyramid. The fruit is thickly studded with acid hairs and is not poisonous. The fruit is eaten by many birds in the winter.

The bark on old trunks is somewhat roughened by loose brown scales, and the twigs are covered with a dense velvety hair resembling deer horns in the velvet.

The wood is soft, light, coarse-grained, orange colored, and of little or no value. The leaves are rich in tannin and the beautiful foliage and red fruit give it value for ornamental planting.

Distribution in West Virginia: Common throughout the state. Reaches much higher elevations than the other sumachs.

SHINING SUMACH

(*Rhus copallinum* L.)

This sumach, as others of the same genus, is of value only as an ornamental and for landscape work. The wood is sometimes, but rarely, used in the manufacture of small wooden novelties. This is a shrub or small tree attaining a height of 20 feet and a diameter of 5 inches. The trunk is straight or angular and supports a loose irregular crown.



SHINING SUMACH

The leaves are compound, alternate, 6 to 12 inches long with petioles that have a winged margin between the 9 to 21 nearly entire leaflets. The leaflets are smooth and shiny above and downy beneath.

The bark is roughened on the old trunk by brown scales or elevated by brown projections.

The fruit matures in late summer and is quite similar to that of staghorn sumach.

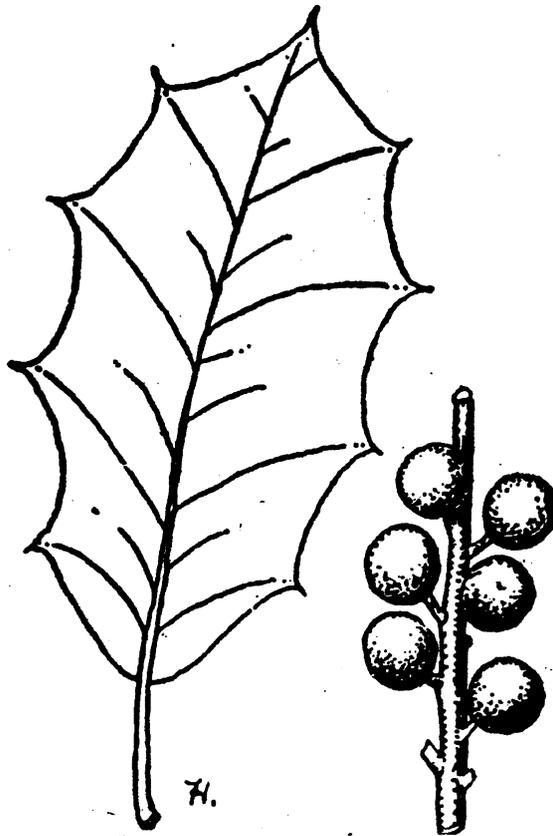
The wood is soft, coarse-grained, light brown, richly striped with yellow and black. The tree is common in most sections of the state except at high elevations.

Distribution in West Virginia: Common in most counties. Page 78

AMERICAN HOLLY

(*Ilex opaca* Ait.)

The American holly is well known throughout the state for its wide use during the Christmas holidays. Its evergreen foliage and bright red berries are much sought after for decorative purposes. It prefers moist soils near rivers or rich loamy ground.



AMERICAN HOLLY

It is a small evergreen seldom exceeding 30 feet in height and 12 inches in diameter. The bark is light gray and roughened by wart-like growths. The numerous short branches form a pyramid of striking dark green color.

The leaves are simple, alternate, oval, thick and leathery, 2 to 4 inches long and armed with spiny teeth. They persist for three years then turn yellow and drop off in the spring.

The flowers are small, white, and inconspicuous; the male and female flowers are borne on separate trees.

The fruit ripens in late fall, persists on the branches over the winter, is a dull red round berry, and is about $\frac{1}{4}$ inch in diameter.

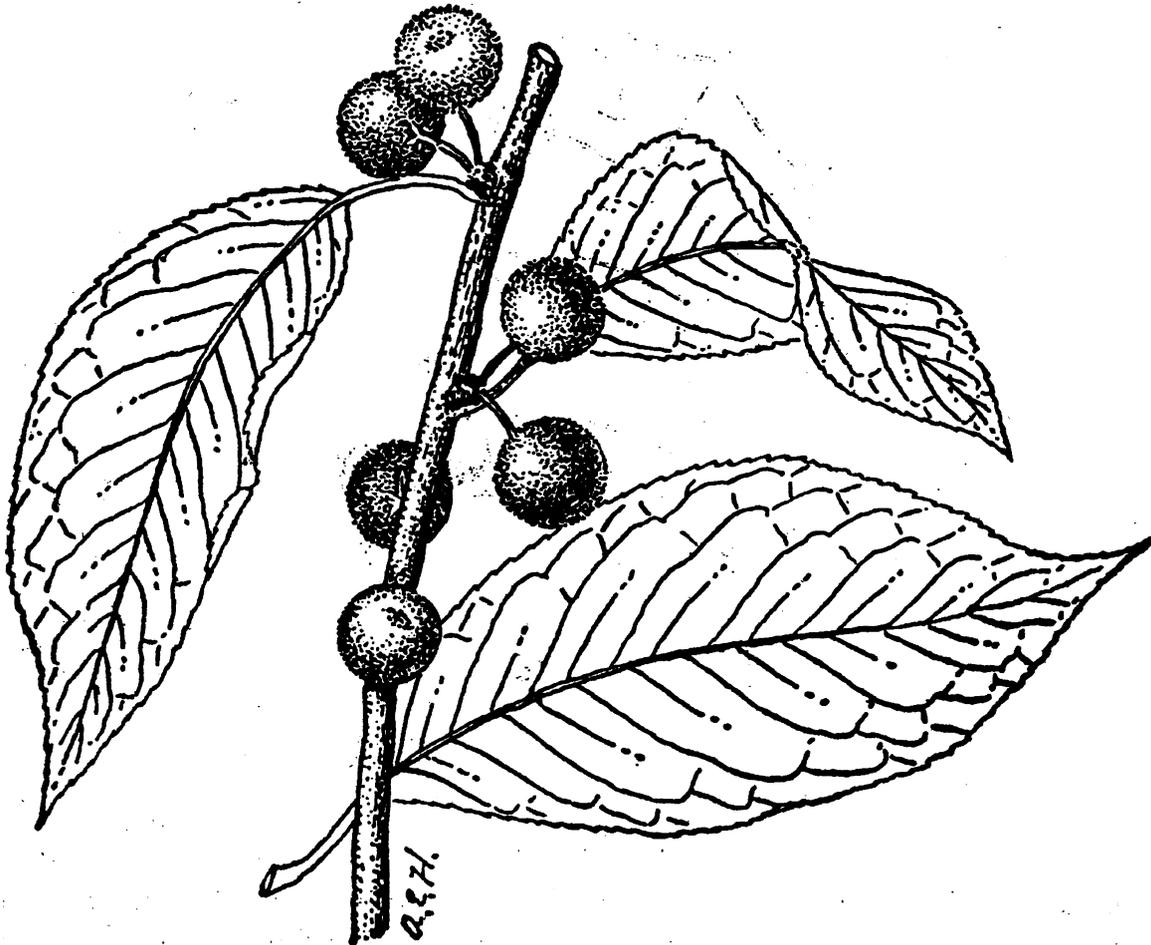
The wood is light, tough, and nearly white. It is used for cabinet work, piano keys, inlaid work and interior finish. It is very desirable for ornamental planting and is a slow growing species.

Distribution in West Virginia: Locally scattered in the counties west of the Allegheny Mountains and common along the streams of southern West Virginia.

MOUNTAIN HOLLY

(*Ilex montana* Torr. and G.)

This small tree is not important except for ornamental purposes. It has a bright foliage with bright scarlet fruit. It seldom grows more than 25 feet high with a diameter of 8 inches. The trunk is short with slender branches.



MOUNTAIN HOLLY

The bark is thin, somewhat rough and warty on old trees and light brownish-gray in color.

The leaves are alternate, simple, deciduous, 4 to 5 inches long, smooth and sharply serrate.

The fruit ripens in Autumn and is a round scarlet berry containing 4 to 6 nutlets.

The wood is hard, close-grained, nearly white, and is of no commercial importance.

Distribution in West Virginia: Not common. Locally distributed at elevations above twenty-five hundred feet.

STRIPED MAPLE

(*Acer pennsylvanicum* L.)

The striped maple is also commonly known as moosewood and goosefoot maple. The latter name comes from the goose foot shape of the leaves. The tree reaches a height of 10 to 25 feet with a diameter of 6 to 12 inches, and the crown is irregular and usually broad.



STRIPED MAPLE

The bark is smooth, thin, greenish or reddish-brown and is characteristically marked with vertical pale stripes.

The leaves are simple, opposite, 5 to 6 inches long, three-lobbed, sharply and deeply serrate, rather smooth above the pubescent beneath.

The flowers appear in May or June, are yellow and bell-shaped. The fruit matures in the fall and consists of paired samaras in long drooping clusters. The fruit is winged and about $\frac{3}{4}$ inch long.

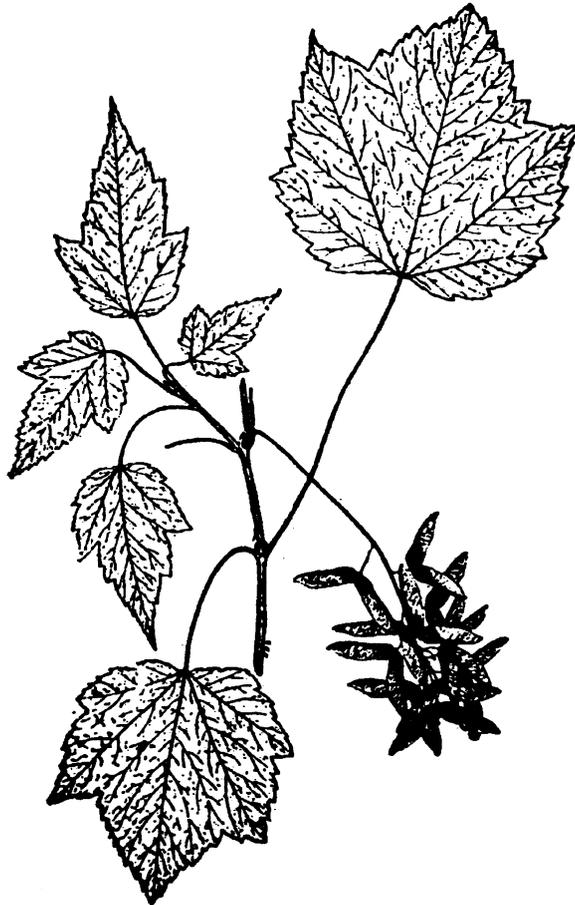
The wood is light, soft, close-grained, pinkish-brown, and is of no commercial importance but always attracts attention whether it is growing in the moist woods or on the lawn.

Distribution in West Virginia: Common only in the mountains and foothills of the state.

MOUNTAIN MAPLE

(*Acer spicatum* Lam.)

The mountain maple may always be distinguished by its erect flower spikes, small red fruits, reddish twigs and coarse-toothed leaves. It is a small tree or shrub, seldom growing more than 25 feet high with a diameter of 10 inches.



MOUNTAIN MAPLE

The bark is nearly smooth, light brown, thin, and the twigs are reddish.

The leaves are opposite, simple, 4 to 5 inches long, three-lobed, coarsely serrate and are dark green above with a downy pubescence beneath.

The flowers appear in May or June, are smooth, yellow-green, and arranged in upright dense spines. The fruit ripens in early Autumn and occurs in small paired samaras which are red.

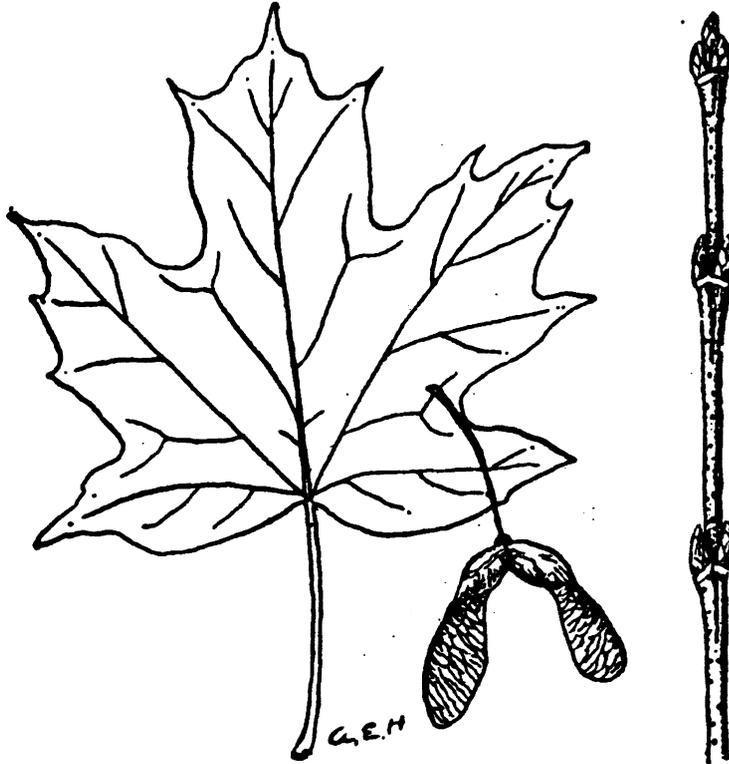
The wood is light, soft-grained, light brown with a thick sap wood. The wood is not found on the market; however, this species is one of the most ornamental of the maples. It prefers damp mountain forests and thrives in the shade.

Distribution in West Virginia: Scattered locally at elevations above three thousand feet.

SUGAR MAPLE

(*Acer saccharum* Marsh)

Sugar maple, sometimes called sugar tree, is one of our best known and most valuable trees. It is a rather slow growing species and has a beautiful symmetrical dense crown. On June 18, 1949, the sugar maple was made the State Tree by the West Virginia Legislature.



SUGAR MAPLE

The bark on the young trees is light gray to brown and rather smooth, but on the older trees it breaks up into long irregular plates. The winter buds are very sharp-pointed. The tree attains a height of more than 100 feet with a diameter of 3 to 5 feet.

The leaves are 3 to 5 inches across, simple, opposite, with three to five pointed lobes. The leaves in Autumn turn to brilliant shades ranging from yellow to orange, scarlet, and dark red.

The flowers are yellowish-green and appear in April and May. The fruit ripens in the fall and consists of a two-winged samara.

The wood is heavy, hard, strong, close-grained, and is known commercially as hard maple. It is very valuable in the manufacture of flooring, furniture, and a great variety of novelties. It is from this species that maple syrup and sugar are made.

Distribution in West Virginia: Found throughout the state.

BLACK MAPLE

(*Acer nigrum* Michx. f.)

The black sugar maple can hardly be distinguished from the sugar maple and is often classed as a sub-species of the latter tree. It can be distinguished from the sugar maple by the leaves which are thicker, less deeply lobed, and slightly hairy beneath. This tree reaches a height of 90 feet with a diameter of 3½ feet. The trunk and crown resemble the sugar maple.



BLACK MAPLE

The bark is usually very dark gray, somewhat darker than the sugar maple and is furrowed deeply.

The leaves are opposite, simple, 5 to 6 inches long and are wider than long. They are three- to five-lobed, thick and firm, green, and usually downy beneath.

The flowers appear in May with the leaves, are yellow on slender hairy pedicels. The fruit ripens in the fall and consists of paired samaras which are clustered on drooping pedicels.

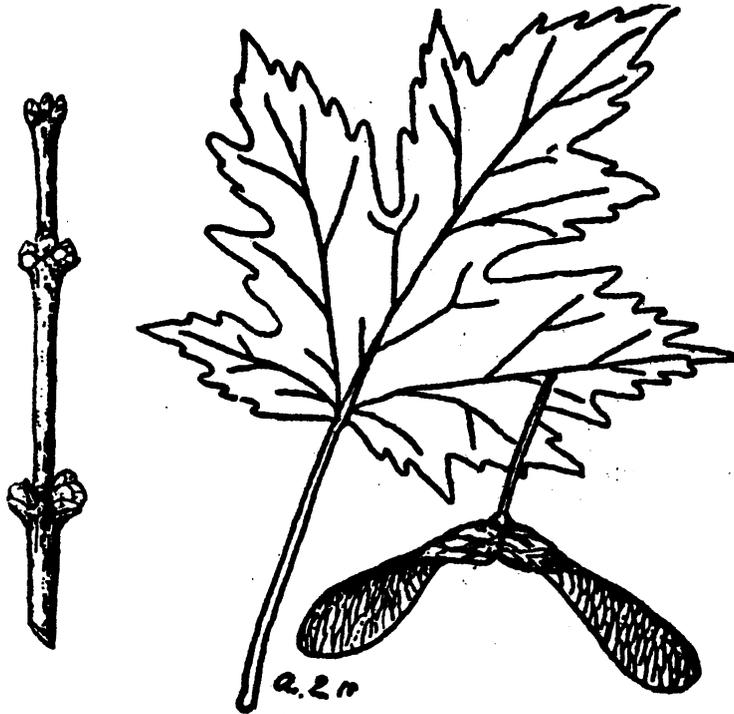
The wood is hard, heavy, strong, close-grained, and light yellow in color. The wood is used for the same purposes as the sugar maple. This is a valuable timber tree, and is also just as valuable as the sugar maple for ornamental purposes.

Distribution in West Virginia: Less common than sugar maple. Observed in the following counties: Lewis, Monongalia, Ohio, Randolph, Tyler, Upshur, Webster and Wetzel.

SILVER MAPLE

(*Acer saccharinum* L.)

The silver maple is also commonly called white maple, river maple, and soft maple. It is less valuable than the sugar maple. The tree reaches a height of 100 feet and a diameter of four feet. The trunk is usually short and divides into several large branches which form a large, open, rounded crown.



SILVER MAPLE

The bark on old trunks is roughened by shallow fissures and flat-topped ridges with thin, loose scales.

The leaves are opposite, simple, 3 to 6 inches long, deeply five-lobed, toothed, and are silvery-white beneath.

The flowers appear in March and April and are yellow-green. The fruit matures in May in large paired samaras with wings 1 to 2 inches long.

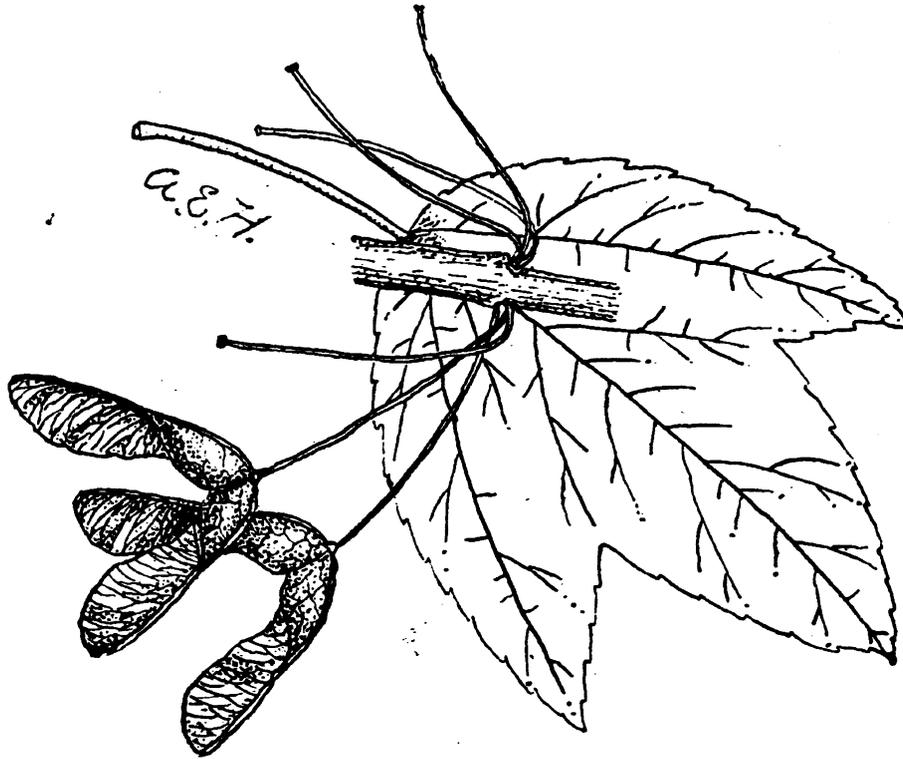
The wood is medium hard, brittle, close-grained, not durable, and light brown in color. The lumber of the silver maple is inferior and used for flooring, cheap furniture and sometimes paper pulp. It is planted extensively for ornamental purposes along streets and boulevards.

Distribution in West Virginia: Found along most of the important rivers of the state.

RED MAPLE

(*Acer rubrum* L.)

The red maple is another of the soft maples, and is inferior to the sugar maple. It grows to a height of 100 feet and a diameter of 4 feet. The trunk is usually more or less twisted and the crown is narrow and rounded.



RED MAPLE

The bark is thick, roughened by shaggy gray ridges, but is smooth on the young trees.

The leaves are opposite, simple, 3 to 4 inches long, three- to five-lobed, coarsely-toothed, green above and whitish beneath.

The flowers appear in March and April in clusters and the petals are red or orange. The fruit ripens in May or June, consists of paired samaras with small smooth wings about 1 inch long.

The wood is heavy, medium soft, close-grained, and light brown. The tree thrives best in swamps, but is found also on the hillsides and ridges throughout the state. Foresters consider it an undesirable species in the woods.

Distribution in West Virginia: Occurs abundantly in all parts of the state.

BOXELDER

(*Acer negundo* L.)

The box elder, also called ash-leaved maple, grows naturally along streams but sometimes thrives when planted in dried soils. It is not an important timber tree but is desirable for ornamental uses. It reaches a height of 60 feet with a diameter of 2½ feet. The trunk is usually short and divides into several large spreading branches which form an unequal open crown.



BOXELDER

The bark is somewhat roughened by narrow, close ridges, gray-brown in color, and the twigs are greenish.

The leaves are opposite, compound, with three to five leaflets which are 2 to 4 inches long. The leaflets are coarse-toothed and slightly three-lobed.

The flowers appear in April and are small, yellow-green in color. The fruit ripens in late summer, consists of paired samaras and persists into the winter.

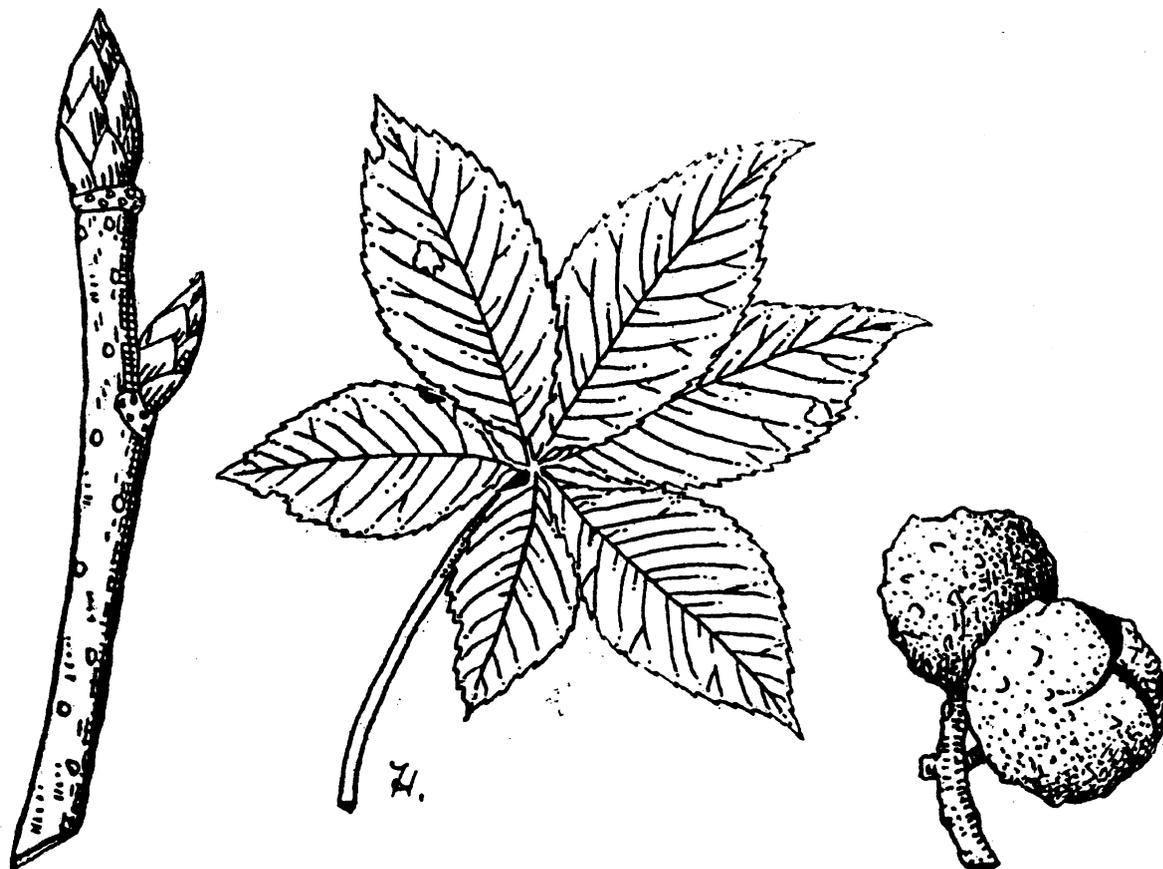
The wood is light, soft, close-grained, not strong and creamy-white in color.

Distribution in West Virginia: Observed in the following counties: Boone, Braxton, Doddridge, Fayette, Jefferson, Lewis, Monongalia, Ohio and Tyler.

OHIO BUCKEYE

(*Aesculus glabra* Willd.)

The fetid buckeye, sometimes called Ohio buckeye, is an unimportant tree which prefers moist soils of river banks. It attains a height of 30 to 60 feet with a diameter of 12 to 20 inches. The trunk is short and supports a deep, round-topped crown.



OHIO BUCKEYE

The bark is roughened by scaly, broken, gray ridges.

The leaves are opposite, compound, with usually five lobes, sometimes six. The leaflets are 3 to 6 inches long, sharp-pointed, finely-toothed, pale green above and paler beneath. The foliage gives off an unpleasant odor when bruised.

The flowers blossom in April or May and are borne in downy terminal panicles. The flowers are yellowish and quite beautiful. The fruit matures in October, and consists of a leathery, round, prickly pod which contains a large, shining, brown nut.

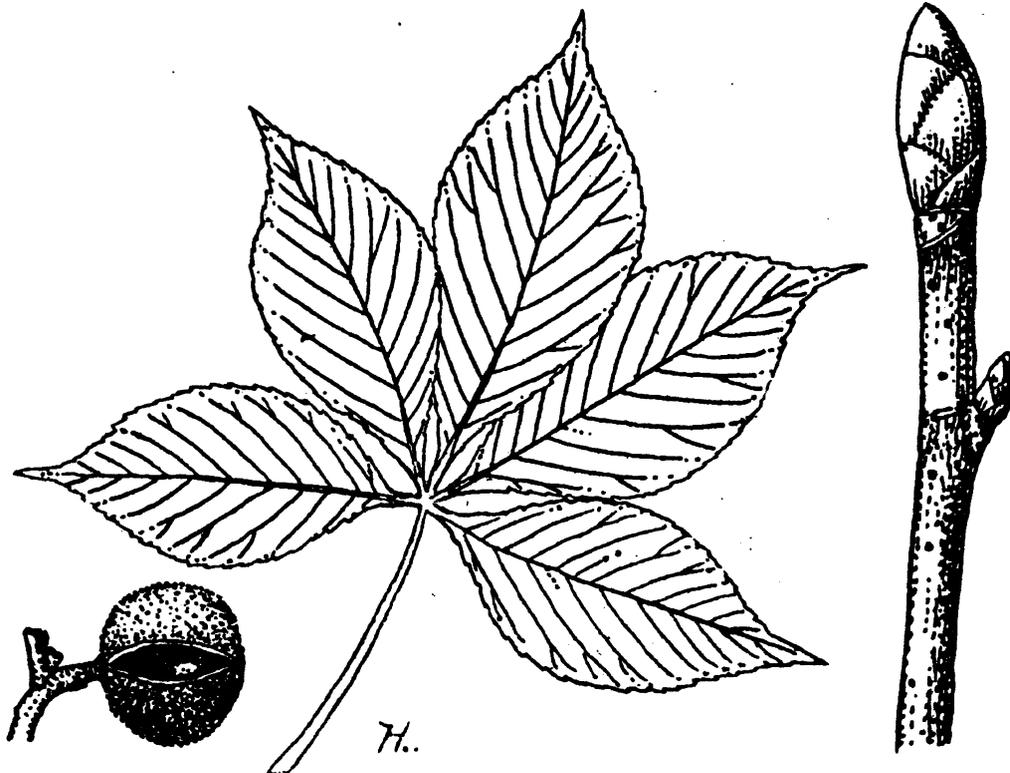
The wood is light, soft, weak and pale yellow. The tree can easily be distinguished from its near relative next described by its prickly pods.

Distribution in West Virginia: Not generally distributed but common along the Ohio River.

YELLOW BUCKEYE

(*Aesculus octandra* Marsh.)

The sweet buckeye is not important commercially, but is used to some extent for veneer, cooperage and boxes. The tree is a rapid grower and is often planted ornamentally. It reaches a height of 50 to 80 feet with a diameter of 1 to 1½ feet. The trunk is usually short and the crown may be conical or round-topped.



YELLOW BUCKEYE

The bark is evenly furrowed with gray-brown ridges which break up into irregular scales.

The leaves are opposite, compound, with 5 to 7 leaflets. The leaflets are 4 to 10 inches long, finely-toothed, and dark green in color. The leaves of this tree turn to a yellow-brown in the late summer, and sometimes in mid-summer. It is one of the first trees to leaf out in the spring.

The flowers appear in April or May and are borne in terminal pinnales which are yellow. The fruit ripens in October and consists of a smooth, irregularly-rounded pod which is three-celled. However, the pod usually bears only one, rounded, glossy, brown nut. The nut is very bitter.

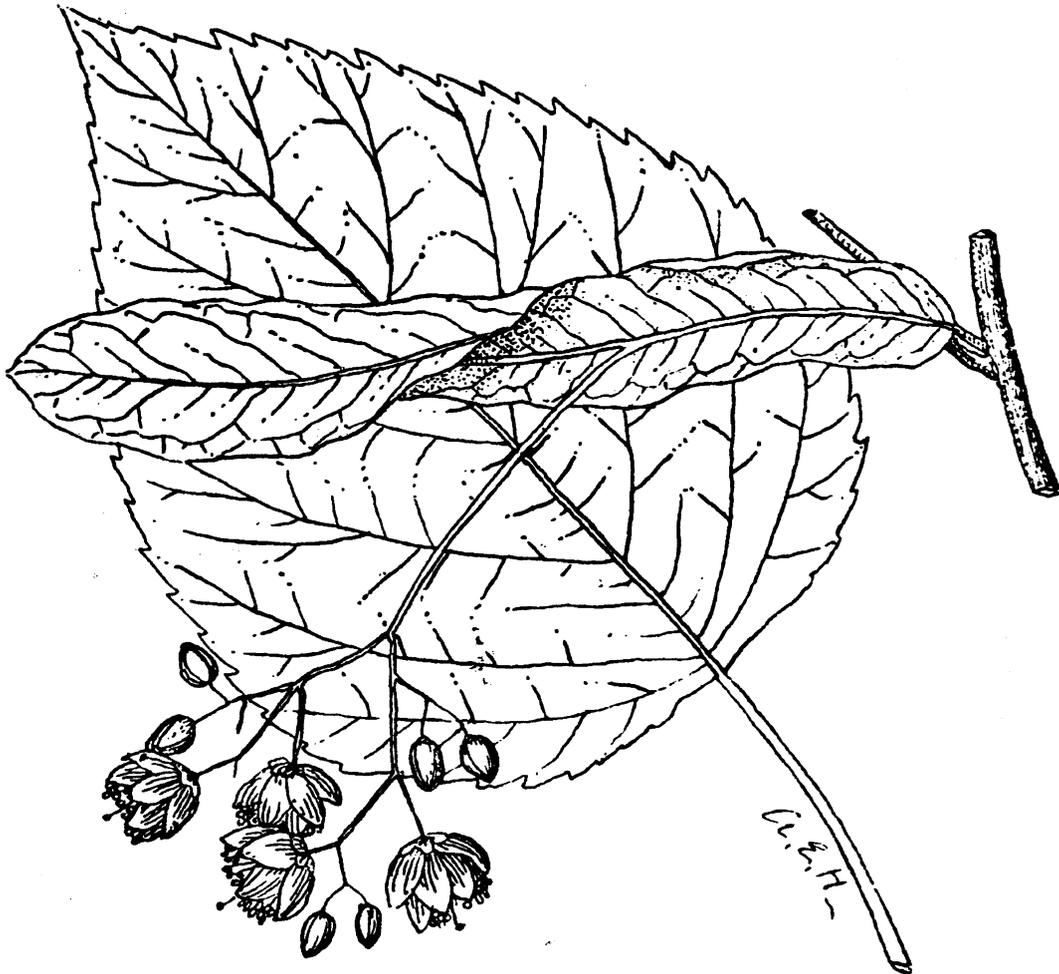
The wood is light, soft, and yellowish in color. This tree is a rapid grower in most parts of the state.

Distribution in West Virginia: Common locally along many of the streams and occasionally in drier ground.

AMERICAN BASSWOOD

(*Tilia americana* L.)

The basswood is known by a variety of common names. Those used most are lynn, linden, beetree, and lime tree. Its leaves furnish the best identifying characteristic. The tree reaches a height of 60 to 100 feet with a diameter of 1½ to 4 feet. The trunk is straight and free from limbs to a considerable height. The crown is dense and round-topped.



AMERICAN BASSWOOD

The bark on old trunks is deeply furrowed with broad, scaly, light brown ridges.

The leaves are alternate, simple, 5 to 6 inches long, obliquely heart-shaped, coarsely serrate, dark green above and pale green beneath.

The flowers blossom in June, are fragrant, and yellowish-white in color. The nectar in the flowers of the basswood makes excellent honey. The fruit ripens in October and consists of a nut-like drupe which is winged and about the size of a pea.

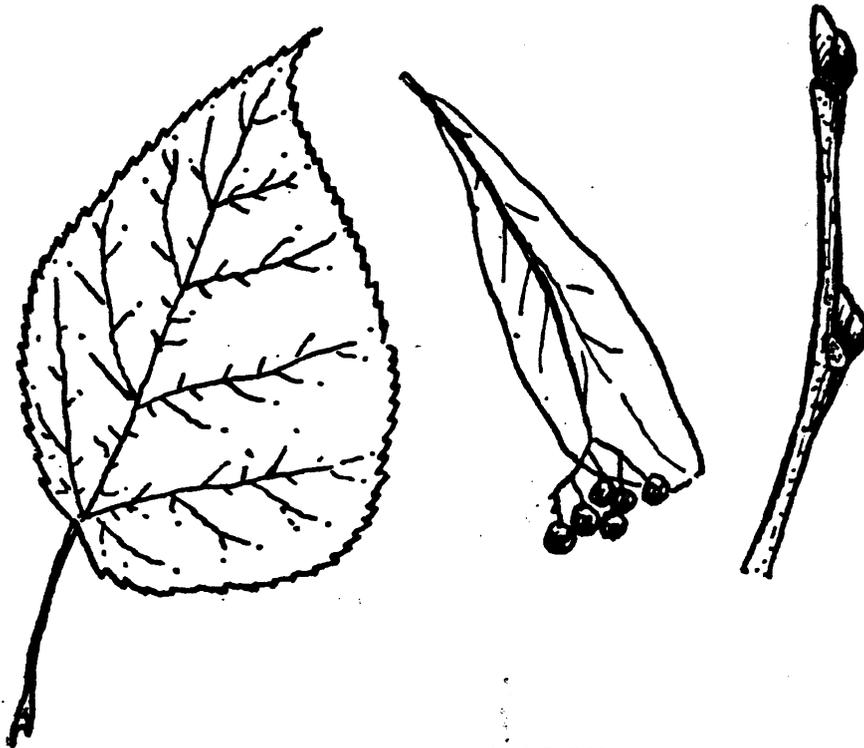
The wood is light, soft, close-grained, tough, and brownish-red. This tree prefers rich, well-drained soils of bottoms and slopes. It is one of our valuable forest trees throughout the state.

Distribution in West Virginia: Most common in the northern part of the state.

WHITE BASSWOOD

(*Tilia heterophylla*, Vent.)

White basswood is sometimes called Lynn or Linden. At one time it was a valuable forest tree, but now is rarely found in commercial size. It is fairly easy to transplant, compared to other deciduous trees, and is often used for ornamental purposes. This and the basswood (*Tilia americana*), on the preceding page, are easily distinguishable by the difference in leaf shape and surface. The tree may reach a height of 60 to 80 feet, with a diameter of two to three feet. Its trunk is long, straight and slightly tapering, its crown dense and round.



WHITE BASSWOOD

The leaves are alternate, simple, oblong, 5 to 8 inches long, apex pointed usually asymmetrical (unequal) at base, with upper surface bright green and under surface silvery and whitened with a fine down.

The fruit is a spherical, woody, nut-like drupe about the size of a pea, borne singly or in clusters on a common stalk attached to a thin bract.

The bark is deeply furrowed with gray-brown ridges.

The flowers appear in late June. They are fragrant and yellow to white, attached for half their length to thin greenish bracts.

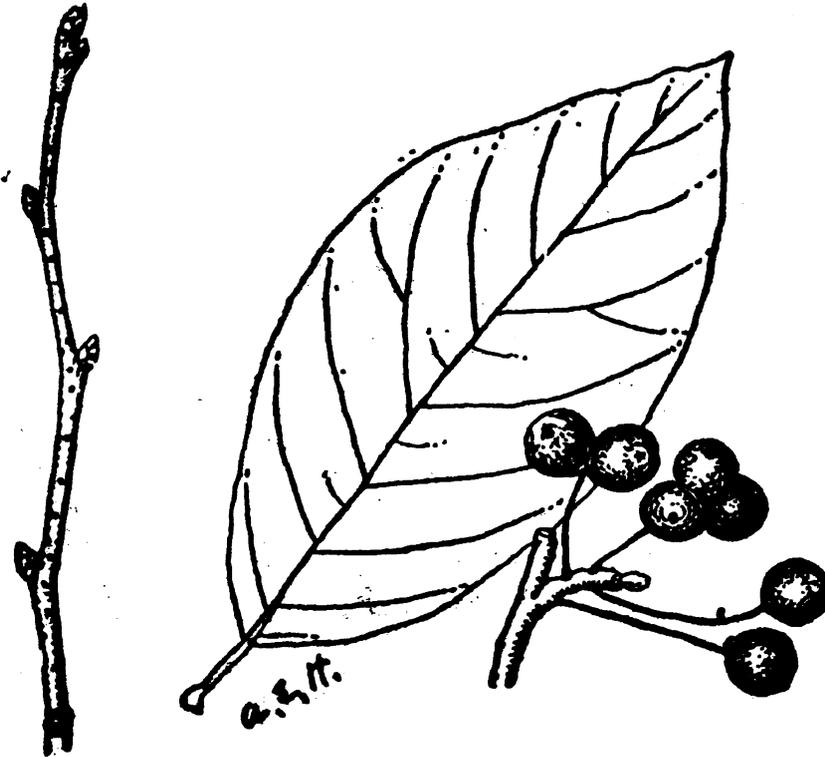
The wood is light, soft, brash, light brownish-red, with thick light colored sapwood.

Distribution in West Virginia: Fairly common in Randolph, Tucker, Hampshire, Hardy, Grant, Webster, Nicholas counties. It is found also in Upshur, Braxton, Lewis, Roane, Fayette, Kanawha, Gilmer, Monongalia and a few other counties.

BLACK TUPELO, OR BLACK GUM

(*Nyssa sylvatica* Marsh.)

The black gum, also called tupelo and sour gum, is one of the less valuable of our forest trees. Foresters in most cases consider it undesirable. It finds footing in many types of soils and conditions throughout the state.



BLACK GUM

The leaves are simple, 2 to 3 inches long, entire and dark green in color. In the fall the leaves turn a brilliant red.

The bark on the mature tree is deeply furrowed and broken into rectangular ridges which are gray-brown to black in color.

The fruit is a dark blue fleshy berry, two-thirds inch long, and contains a single hard-shelled seed.

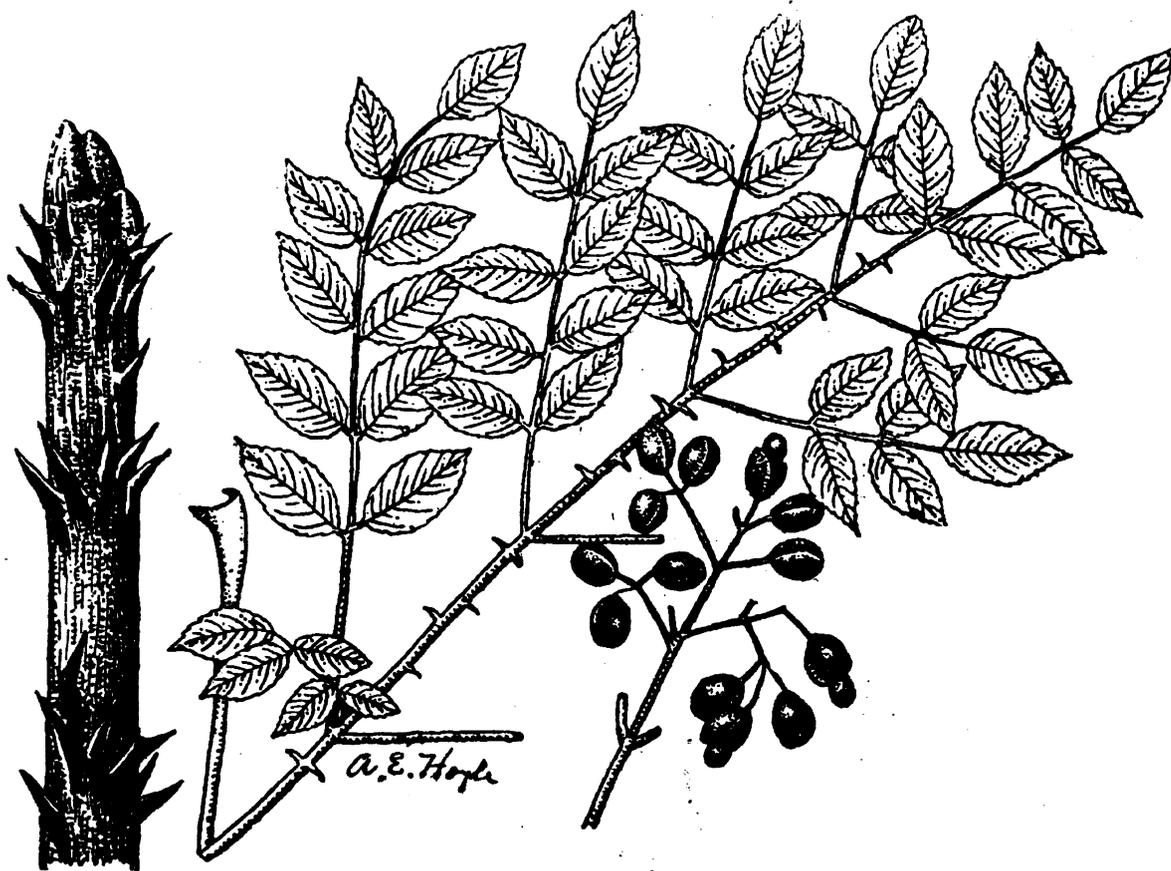
The wood is very tough, coarse-grained, not durable in contact with the soil, hard to work, and warps easily. It is used for crate and basket veneer, rollers and rough floors. The hollow trunks of old trees are often used for "bee gums."

Distribution in West Virginia: Common in most parts of the state.

DEVIL'S WALKINGSTICK OR HERCULES CLUB

(*Aralia spinosa* L.)

Hercules club is sometimes called prickly ash. It has no commercial importance except possibly for ornamental purposes. Its fruit is well liked by the birds. It is a small tree or shrub and sometimes attains a height of 30 feet with a diameter of 8 inches. The trunk is usually without branches for two-thirds of its length. The trunk and branches are armed with prickles.



HERCULES CLUB

The bark is smooth, except on old trunks, which are roughened by shallow fissures. The bark is yellowish inside.

The leaves are alternate, compound, sometimes 3 feet long and 2 to 2½ feet wide. The leaflets are pointed and serrate.

The flowers appear from June to August, are arranged in large, creamy-white, spreading, panicles. The fruit matures in the fall and is a black berry.

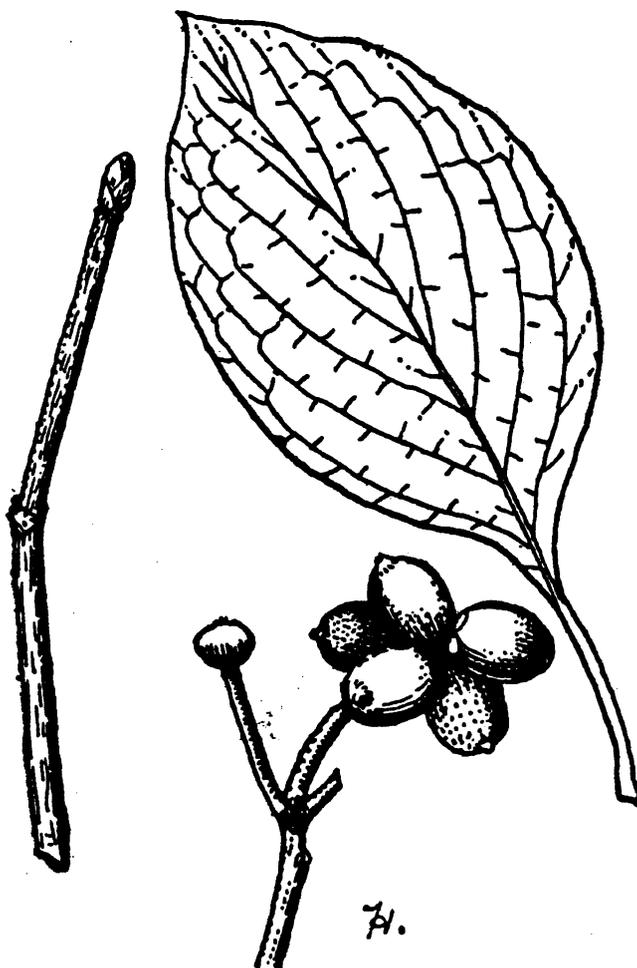
The wood is soft, brittle, weak, and brown, often with yellow streaks.

Distribution in West Virginia: Not common. Locally distributed west of the Allegheny Mountains.

FLOWERING DOGWOOD

(*Cornus florida* L.)

The flowering dogwood is found throughout the state usually growing under larger forest trees. It is well known as an ornamental tree, and its wood is also used commercially for small articles, spools, golf-stick heads and wedges. It is a small tree, usually 15 to 30 feet high and 6 to 12 inches in diameter, with a flat spreading crown.



DOGWOOD (FLOWERING)

The bark is reddish-brown to black and broken up into scaly blocks.

The leaves are opposite, 3 to 5 inches long, 2 to 3 inches wide, pointed, entire or wavy on the margin, bright green above and pale green beneath.

The flowers appear in May and unfold from round grayish buds. The flowers appear before the leaves and are arranged in dense heads surrounded by large white pinkish petal-like bracts.

The fruit is a bright scarlet berry containing a hard nutlet. The fruit is well liked by birds, squirrels, and other animals.

The wood is heavy, hard, strong, very close-grained, and brown to pinkish in color. Its wood is quite similar to that of persimmon. This tree is being planted in the state for roadside beautification purposes and is always a lovely ornamental.

Distribution in West Virginia: Common in all parts of the state.

ALTERNATE-LEAF DOGWOOD

(*Cornus alternifolia* L. f.)

The alternate-leaved dogwood can always be distinguished from flowering dogwood by its leaves, which are alternately arranged on the stems. It is a small tree or shrub, sometimes attaining a height of 25 feet and a diameter of 8 inches. The trunk is short, the crown flat-topped, and dense.



ALTERNATE-LEAVED DOGWOOD

The bark is smooth or slightly roughened by vertical fissures on the old trunk. The smooth bark of the branches is green.

The leaves are alternate, rarely opposite, and are clustered at the end of the limbs. They are entire, taper-pointed, whitish-green, and downy beneath.

The flowers appear in April and May and are cream colored. The fruit matures in Autumn and is a deep blue drupe. This serves as another distinguishing characteristic since the fruit on the flowering dogwood is red.

The wood is heavy, hard, tough, close-grained, and brown tinged with pink. The tree prefers stream borders and cool ravines. It is of no commercial importance.

Distribution in West Virginia: Not common. Locally distributed in several counties west of the Allegheny Mountains.

RHODODENDRON

(*Rhododendron maximum* L.)

The rhododendron is sometimes called great laurel or deer tongue laurel. It is certainly one of the most beautiful of all our native species and has been appropriately selected as the West Virginia state flower. It is a small tree or shrub, sometimes, reaching a height of 20 to 30 feet. The trunk is short, usually twisted and bent, with contorted branches which form an irregular or flat top. The bark is roughened by thin flaky scales which are dark brown.



RHODODENDRON

The leaves are alternate, simple, evergreen and clustered at the ends of the branches. They are smooth, entire, dark lathery green above and light green beneath.

The flowers appear in June and are a beautiful pale rose to white. They are arranged in umbel-like heads 4 to 5 inches in diameter. The fruit matures in late summer and persists throughout the winter. It is a reddish-brown many seeded capsule about $\frac{1}{2}$ inch long.

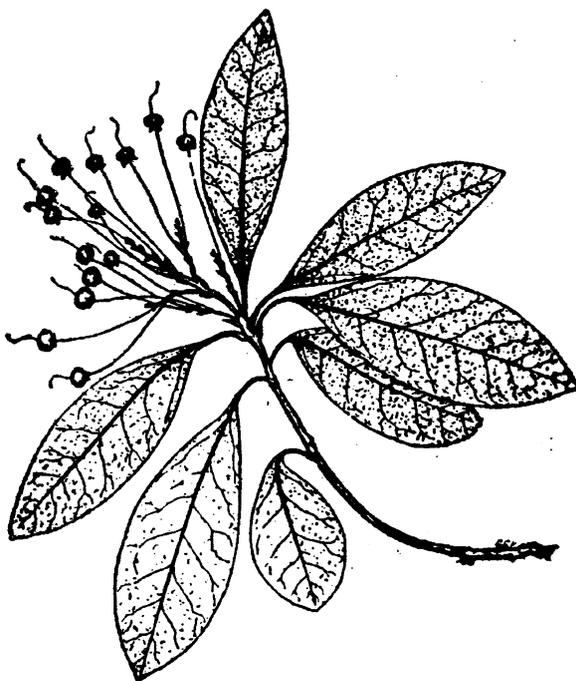
The wood is hard, strong, brittle, close-grained, and light brown in color. It is used occasionally for tool handles and other small articles. It is also often used in the making of rustic furniture.

Distribution in West Virginia: Common throughout the state.

MOUNTAIN LAUREL

(*Kalmia latifolia* L.)

Mountain laurel seldom grows large enough to be of commercial importance. Its rich evergreen foliage and beautiful pink and white flowers are nearly as attractive as those of rhododendron. It is a small tree or shrub, sometimes attaining a height of 25 feet. The trunk is stout, usually forked and bears stiff irregular branches.



MOUNTAIN LAUREL

The bark is roughened by narrow, thin, scales which peel off.

The leaves are alternate, simple, evergreen, 3 to 4 inches long with entire margins. The leaves persist on the tree for two seasons.

The flowers appear in May or June, are pink or white in many-flowered terminal corymbs. The fruit matures in early fall, is a many seeded capsule covered with hairs.

The wood is heavy, hard, strong, rather brittle and reddish-brown in color. It is occasionally used for small articles and for rustic furniture. Mountain laurel is always a beautiful ornamental.

Distribution in West Virginia: Common in all parts of the state.

SOURWOOD

(*Oxydendrum arboreum* (L.) DC.)

The sourwood is not of commercial importance. The tree is quite ornamental when in bloom and the nectar of the flowers makes excellent honey. The tree reaches a height of 60 feet and sometimes a diameter of 18 inches. The trunk is medium long and slender with a narrow, round-topped crown.



SOURWOOD

The bark is thick, roughened by broken grayish ridges.

The leaves are alternate, simple, pointed, serrate, smooth and 5 to 7 inches long.

The flowers appear in July, are small and white in long clusters. The fruit matures in early fall, is a five-valved capsule, and often persists into the winter.

The wood is hard, heavy, close-grained and reddish-brown in color. This tree prefers light, well-drained soils of hillsides and bottoms.

Distribution in West Virginia: Rather rare in the eastern panhandle. Otherwise, fairly common throughout the state.

COMMON PERSIMMON

(*Diospyros virginiana* L.)

The persimmon is always well known because of its peculiar fruit. It is not an important tree in West Virginia as a wood producer because of its small size and scattered distribution. It rarely exceed 50 feet in height with a diameter of 18 inches. It seems to prefer light, sandy soils and hillsides.



PERSIMMON

The bark of the old tree is almost black and separates into nearly square blocks.

The leaves are alternate, oval, entire, 4 to 6 inches long, dark green and shining above and paler beneath. The flowers appear in May and are cream or yellowish-white. They are bell-shaped and the two kinds occur on separate trees. The fruit is a pulpy, round, orange colored berry which contains several flattened seeds. It is exceedingly astringent while green, but often quite delicious and edible when thoroughly ripe. It is much relished by children and wild animals.

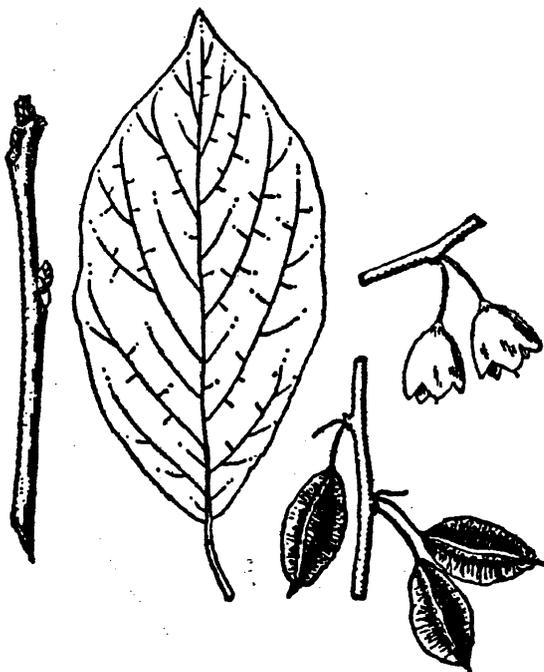
The wood is hard, dense, heavy, strong, and the heartwood is brown or black. It is valued for shovel handles, golf sticks and other similar special uses.

Distribution in West Virginia: Found throughout the state.

CAROLINA SILVER BELL

(*Halesia carolina* L.)

The silver bell, also known as opossum wood and snowdrop, is of no commercial importance in West Virginia but is a beautiful and interesting small tree with bell-shaped flowers. It seldom attains a height in West Virginia of more than 40 feet with a diameter of 10 inches, but in the Great Smoky Mountains of Tennessee and North Carolina it has attained a height of about 100 feet.



SILVER BELL.

The leaves are simple, opposite, oval, thin, finely-toothed, and vary in length from 4 to 6 inches. The bark ranges in color from a very light gray to a very dark reddish-brown.

The flowers appear early in the spring with the leaves, are white or sometimes tinged with pink. These bell-like flowers suggest the name of silver bell. The fruit is from 1 to 2 inches long with a corky covering.

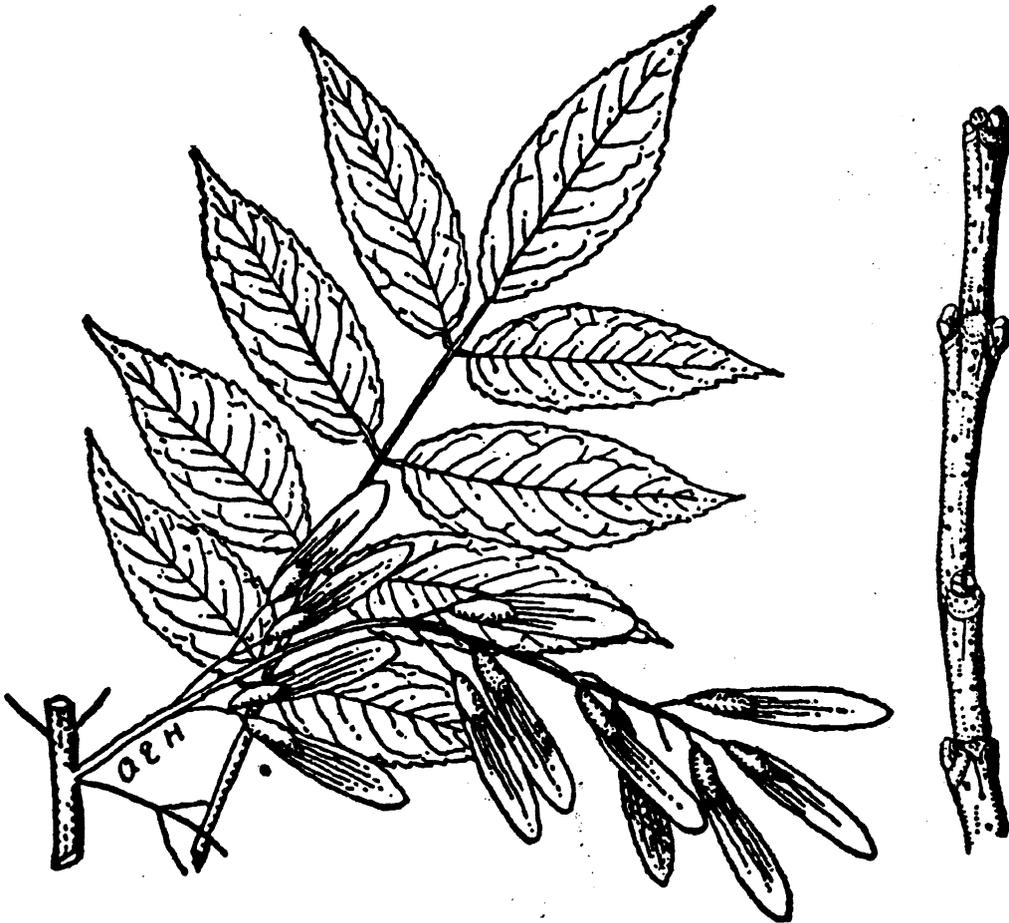
The wood is soft, light, cherry colored, streaked with white. When large enough it is cut for lumber and used as a substitute for cherry. It is an attractive ornamental.

Distribution in West Virginia: Found along the Great Kanawha and New Rivers in Kanawha, Fayette and Summers counties, and in Raleigh and Mercer counties.

WHITE ASH

(*Fraxinus americana* L.)

This species is the most common ash. It grows in many situations but prefers rich, moist, loamy soil of mountain coves and river bottoms. It reaches an average height of 50 to 80 feet and a diameter of 2 to 4 feet. The bark varies from light gray to a gray-brown. The ridges are separated by regular, deep, diamond shaped fissures.



WHITE ASH

The leaves of the white ash are from 8 to 12 inches long, opposite, compound, and composed of 7 to 9 leaflets. The ashes are the only group of trees in Eastern America that have opposite, compound, leaves with five or more leaflets.

The fruit of the ash is winged, 1 to 1½ inches long, resembles the blade of a canoe paddle with the seed in the handle end. The fruit ripens in late summer and is distributed by the wind.

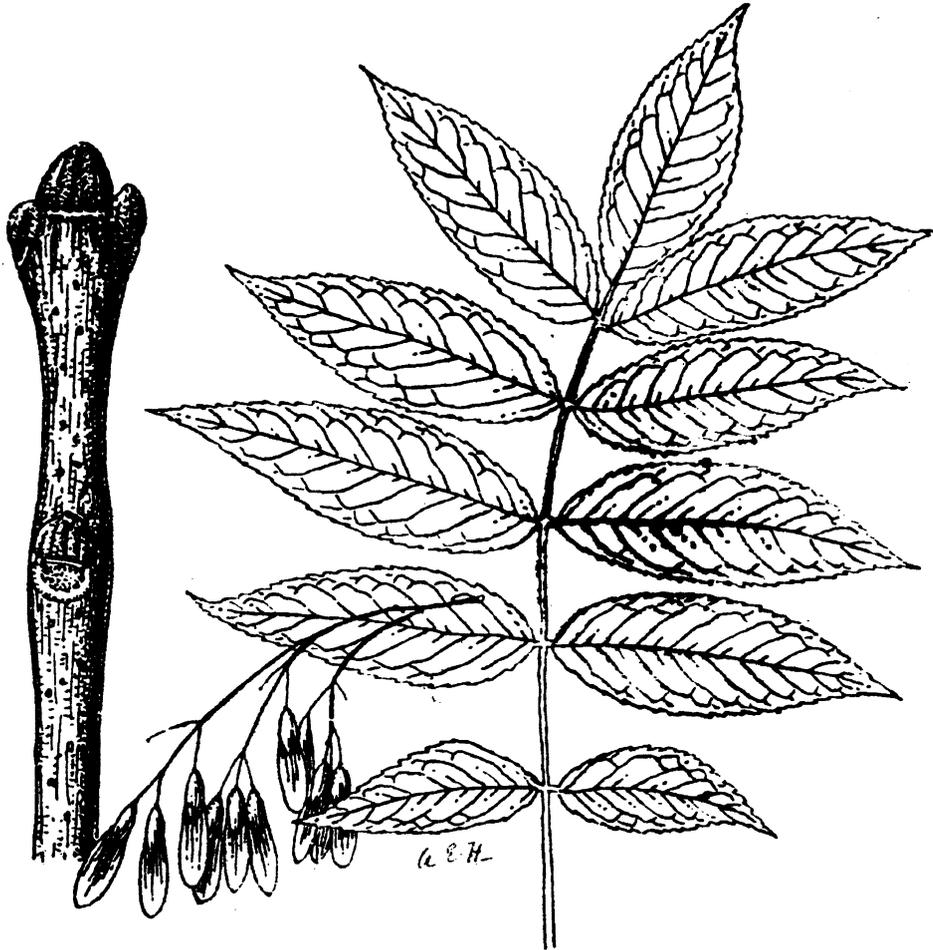
The wood of the white ash is quite valuable on account of its toughness and elasticity. It is preferred for small tool handles, baseball bats and oars. It is also used extensively for furniture and interior finish.

Distribution in West Virginia: Common throughout the state.

BLACK ASH

(*Fraxinus nigra* Marsh)

This tree is found only occasionally in the state and can not be considered as important. It can be distinguished from all other ashes by the leaflets which are sessile and branch directly on the main leaf stem. The tree reaches a height of 60 to 90 feet with a diameter of 1 to 2 feet.



BLACK ASH

The bark is scaly on old trunks, not deeply fissured, and ash-gray in color. The outside bark is easily rubbed off by hand.

The leaves are opposite, compound. 12 to 16 inches long, with 7 to 11 serrate leaflets.

The fruit matures in early autumn, is winged, and occurs in open drooping clusters.

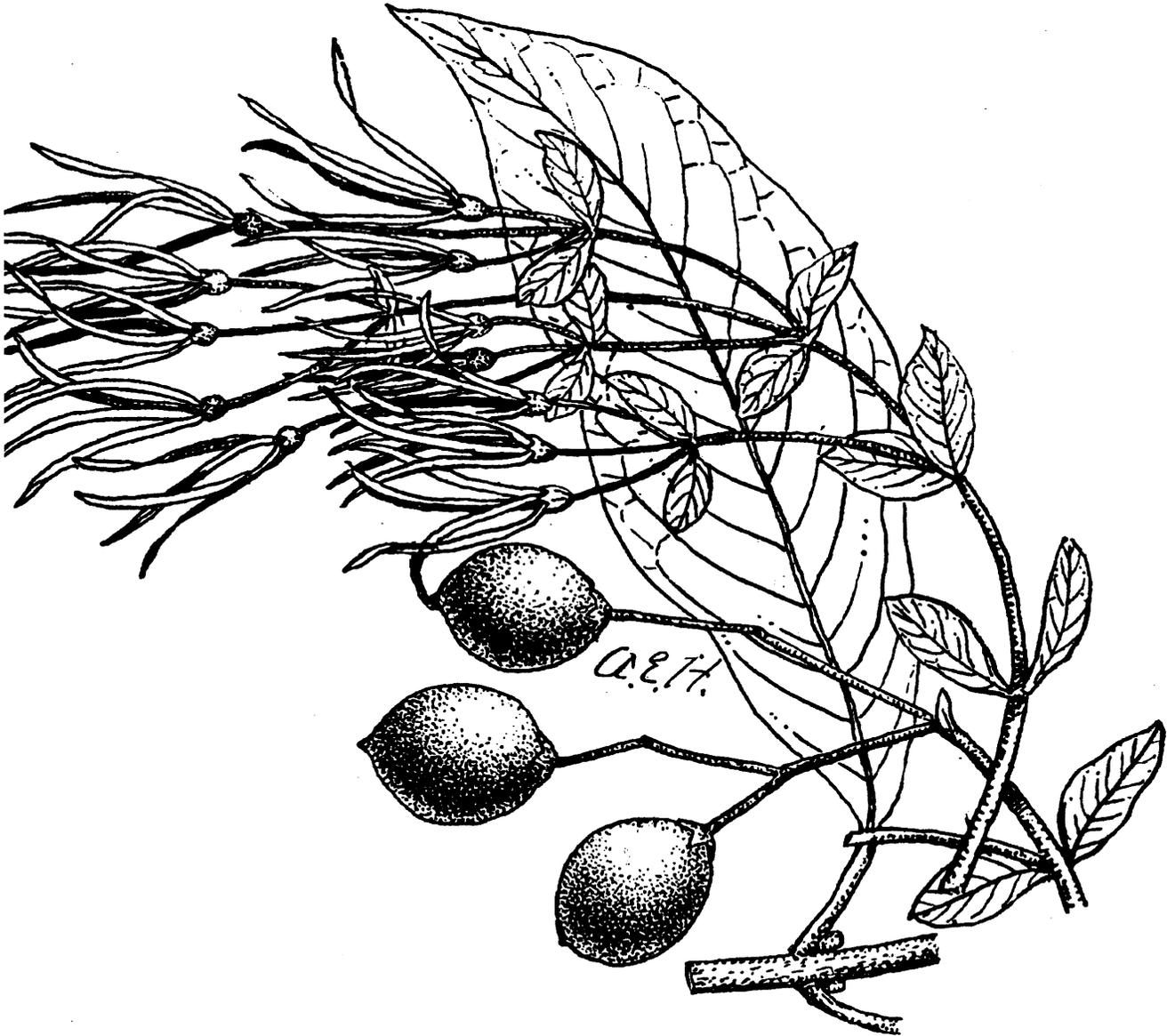
The wood is heavy, coarse-grained, weak, rather soft and brown in color. This species is found occasionally in low river bottoms and swamps.

Distribution in West Virginia: Not common. Observed in Preston, Tucker, Randolph, and Webster.

FRINGE TREE

(*Chionanthus virginicus* L.)

The fringe tree is valuable only as an ornamental. It is a small slender tree sometimes reaching a height of 30 feet with a short trunk bearing numerous stout ascending branches which form a deep crown.



FRINGE TREE

The bark is smooth or somewhat scaly, reddish-brown and thin.

The leaves are opposite, simple, ovate, entire, 4 to 8 inches long, and smooth.

Flowers appear in May or June, are white, distinctly fragrant and are borne in loose, drooping, graceful panicles.

The fruit is a purple berry, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, and is borne in drooping clusters.

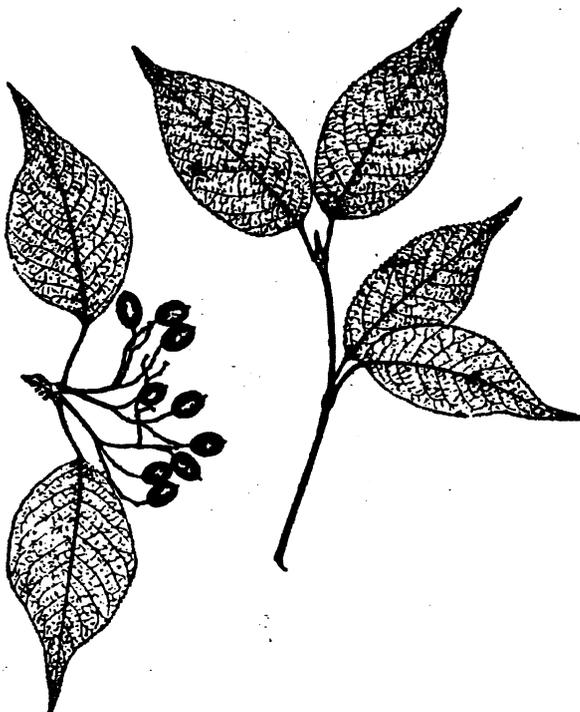
The wood is heavy, and hard, close-grained, brown with thin lighter colored sapwood. This species prefer rich, moist soil of stream banks and swamp borders.

Distribution in West Virginia: Not common. Scattered through the eastern and south-eastern parts of the state.

NANNYBERRY

(*Viburnum lentago* L.)

The nannyberry can always be easily identified by its leaves which are abruptly tapered into long slender points and which are finely serrate. It is also commonly called sheep berry. The nannyberry is a shrub or small tree, sometimes attaining a height of 25 feet with a diameter of 6 to 8 inches. The trunk is short and crown round.



NANNYBERRY

The bark on old trunks is roughened by thin scales and reddish-brown in color.

The leaves are opposite, simple, $2\frac{1}{2}$ inches long, and the petioles are winged.

The flowers appear in May or June and consist of many small white flowers. The fruit is black, sweet, juicy, and berry-like in form. It contains a flat stone seed. The fruit is borne on reddish stalks in drooping clusters.

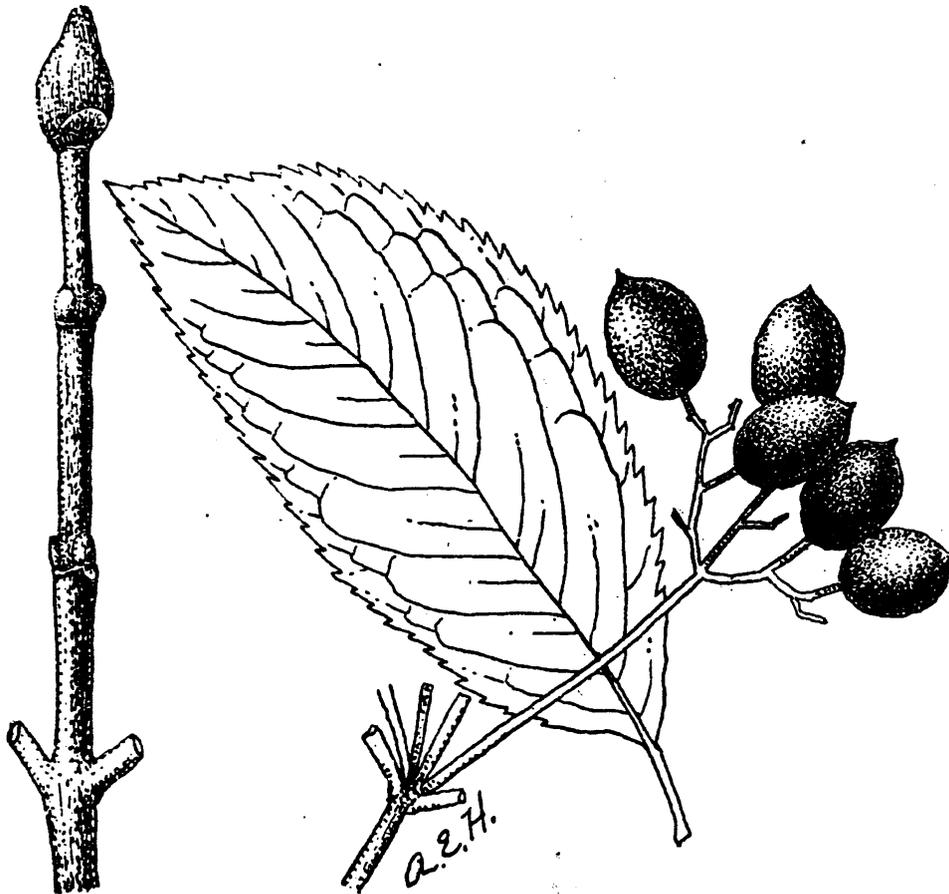
The wood is heavy, hard, yellow-brown, with a disagreeable odor. Its wood is of no commercial value but the tree makes a fairly good ornamental.

Distribution in West Virginia: Not common. Observed in Tucker, Grant, Hardy, and Pocahontas counties.

BLACKHAW

(*Viburnum prunifolium* L.)

The blackhaw is a small tree or shrub resembling nannyberry and has little or no commercial value. The bark of its roots is sometimes used, however, for medicinal purposes. This tree sometimes attains a height of 20 to 30 feet in good soil.



BLACKHAW

The bark is reddish-brown in color and broken into thin, rough, plate-like scales.

The leaves are opposite, simple, oval, slightly pointed, finely serrate, and are smooth. They are about 1 to 3 inches long.

The flowers appear in May and are snow-white in color and borne in large terminal clusters.

The fruit is a dark blue, almost black, fleshy berry. It is borne in clusters on reddish stalks and is edible. It is an excellent bird and game food.

The wood is similar to that of nannyberry.

Distribution in West Virginia: Common locally in many parts of the state.

GLOSSARY

- Alternate**..... In leaf arrangement, appearing singly at a node, in zig-zag fashion on the twig.
- Apex**..... The tip, or end of a leaf; the part opposite the base.
- Appressed**..... Lying close against.
- Bract**..... A small leaf-like scale under a flower.
- Capsule**..... A dry fruit composed of more than one cell and splitting open when ripe.
- Catkin**..... A scaly, spike-like cluster of small, one-sexed flowers, often drooping.
- Clustered**..... Growing in bunches.
- Compound**..... In leaf types, composed of several leaflets on one stem.
- Compressed**..... Flattened from the side.
- Corymb**..... A flat-topped or convex flower cluster, the outer flowers opening first.
- Crown**..... The upper mass of branches of a tree or shrub.
- Cynce**..... A flower cluster in which the terminal or central flower blooms first, frequently flat topped.
- Deciduous**..... Falling off, usually at the end of a growing season.
- Depressed**..... (Fruit)—Somewhat flattened from above.
- Drupe**..... A fleshy fruit with a pit or stone.
- Entire**..... (leaf)—With a smooth edge, not notched.
- Follicle**..... A dry fruit of one cell, splitting open on one side only.
- Heartwood**..... The central, dead portion of the wood of a tree, usually distinguished from the outer living sapwood by a difference in color.
- Leaf Margins**..... The border or edge of the blade.
- Leaflet**..... A division of a compound leaf.
- Lobe**..... Any division of an organ, often rounded.
- Mucilaginous**..... Sticky.
- Nutlet**..... A very small nut.
- Oblique**..... Unequal-sided; said of leaf bases.
- Ovoid**..... Egg-shaped, with the broadest portion near the base.
- Panicle**..... A branched cluster of flowers.
- Pedice**..... The stalk of a single flower.
- Petiole**..... The stalk of a leaf.
- Primate**..... Arranged like the parts of a feather, applied to the veining of leaves, sometime to compound leaves.

- Pod**..... A dry fruit that splits open naturally when mature.
- Pome**..... A fleshy fruit with a core (an apple is a pome.)
- Pubescent**..... Covered with hairs.
- Raceme**..... A long cluster of flowers, the individual flowers borne on stalks of about equal length.
- Resinous**..... Having resin, as the wood of pines and certain other conifers.
- Samara**..... A winged fruit which does not split open when mature.
- Sapwood**..... The outer, living portion of the wood of a tree (see heartwood).
- Serrate**..... Saw toothed with the teeth directed away from the base of the leaf.
- Sessile**..... Without a stalk.
- Simple**..... All in one piece—not divided.
- Solitary**..... Standing alone.
- Spike**..... A long cluster of flowers, the individual flowers without stalk.
- Terminal**..... Borne at the tip of a stem or branch.
- Tolerant**..... Said of a tree or other plant which can flourish and reproduce itself under the shade of other trees.
- Trunk**..... The main stem of a tree.
- Whorls**..... Three or more leaves growing from the same point on a stem.
- Witches Brooms** Dense growths or clusters of twigs resembling brooms. Characteristically found on certain trees.
- Umbel**..... A cluster of flowers with the individual flower stalks attached at the same point.

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