

BARK & WOOD OF DISTINCTION

2014 Eco-Meet

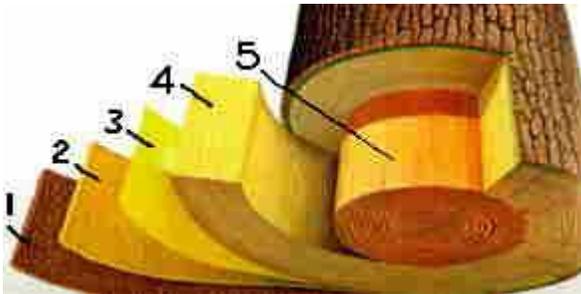
Varsity

Bark is a tree's protective shield. The cells in the outer bark, although no longer living, protect the tree in many ways. Being relatively waterproof, bark prevents the trunk and branches from drying out. It helps to insulate the more sensitive cells on the inside, from extreme temperatures and weather conditions. Some trees have thick, fire-resistant bark, making it possible for them to survive the milder forms of flash forest fires, which burn the debris and brush in a forest. The hard, tough layer of bark also protects the tree from insects, fungi, diseases and parasitic plants.

Most barks contain chemicals which help to defend the tree against intruders; one of these is tannin, the taste of which discourages many critters from eating the bark.

Into the thick of it- Some trees, like pines, firs and eucalyptus, produce gums and resins. When the tree is damaged these substances ooze out to seal and disinfect the wound. The anti-septic properties of the tree gums and resins have been utilized by humans for centuries.

Bark occurs in a wonderful variety of patterns, textures and colors, each the distinctive trait of a particular tree species.



A close inspection of a cross section of a tree reveals the complexities of the inner structure of a tree. The corky outer layer of **bark** (# 1), which consists of dead cells, changes subtly into an inner, living layer called the **phloem** (#2). Just inside the living bark is the light-colored **sapwood** (#4). At the center of the tree is the darker **heartwood** (#5), prized for commercial purposes because of its color, strength and degree of hardness.

The **cambium** (#3), a special group of cells, required for the tree to grow, and imperceptible to the naked eye, is located between the phloem and the sapwood. During the growing season, the cambium cells divide at a frantic pace creating new tissue in both the phloem and the sapwood layers. As this new tissue is created, the tree increases in diameter.

The cells produced on the outside of the cambium become part of the phloem. The phloem is a thin layer made up of elongated cells that encase the trunk, branches and major roots of the tree. The function of the phloem is to move food manufactured in the leaves down to the roots.

Most of the cells formed by the cambium accumulate on the inside of the layer as **xylem** (#4) or **sapwood**. This layer accounts for the majority of the increase in the trees' diameter each year. The sapwood or xylem is a network of thick cells forming a pipeline to carry water and minerals from the roots up to the leaves where food manufacturing takes place.

Some of the **phloem** cells die each year and become part of the outer bark. As the growing tree expands by adding a new sapwood layer, its protective armor becomes too tight, and the outer bark splits and cracks. Definite bark patterns are produced by each species as a result of this cracking. These patterns are so distinct that some trees can be identified by them. The outer bark layers are shed in many different ways. Birch bark peels off in paper-thin strips; sycamore bark flakes off in large, thin, brittle plates; cedar bark peels off in long, fibrous strips; and the cinnamon-red plates of the ponderosa pine flake off in bits like jigsaw puzzle pieces. Oak and persimmon bark accumulates to great thicknesses, cracking in deep fissures as the trunk expands.

In addition to its importance to the tree, bark is of great economic importance to man. From it he gets dyes; cork; cinnamon; drugs such as quinine, aspirin and laxatives; and tannin, a chemical used for tanning leather. Bark is also used as a soil mulch or conditioner. In times of energy shortages it becomes a fuel source. Although today, most dyes are synthetic, natural dyes obtained from the Osage orange, black oak, black walnut, sumac, yellowwood, mesquite, red gum, and dogwood were used for centuries.

IDENTIFYING FEATURES

- leaf shape/texture/color
- leaf or twig arrangement
- **bark patterns, colors, texture**
- **buds and leaf scars**



Alternate



Opposite



Whorled



Simple

Compound

Bi-pinnately Compound

Palmately Compound

Needles or Acicular

Opposite Leaves

Alternate Leaves

Awl-Shaped Needles

Scale-Like Needles

Ash, White

- Scientific Name: *Fraxinus americana*
- Growth form: Large tree up to 100 feet tall; trunk diameter up to 4 feet
- Bark: Light or dark gray, diamond shaped fissures
- Wood: Hard, dense, light colored wood
- Leaves: Opposite, pinnately compound leaflets
- Habitat: Bottomlands and wooded slopes
- Distinct uses: baseball bats



Cherry, Black

- Scientific Name: *Prunus serotina*
- Growth form: Long, clear trunk and oblong crown
- Bark: Thin, smooth, reddish-brown at first, becoming deeply furrowed and black
- Wood: Lightweight, hard, strong, close-grained, light reddish-brown
- Habitat: Moderate sites (not saturated, but not dry); often along fences and power lines (places where birds have dropped their seeds)
- Distinct uses: Furniture and interior finishings



Eastern Cottonwood

- Scientific Name: *Populus deltoids*
- Growth form: Tall overstory tree (over 100 feet and 4 feet in diameter)
- Bark: Smooth and grey when young, becoming furrowed at maturity

- Wood: Lightweight, soft, readily warps
- Habitat: Bottomland forests, open areas
- Distinct uses: lumber, veneer, and pulpwood



Elm, American

- Scientific Name: *Ulmus americana*
- Growth form: Large tree up to 80 feet tall; trunk diameter up to 4 feet, flat topped with drooping branches
- Bark: Light or dark grey, furrowed, at maturity breaking into thin plates
- Wood: Heavy, strong, pale brown
- Leaves: Alternate, simple oval/elliptic
- Habitat: Bottomland woods, along streams
- Distinct uses: flooring, shipbuilding, ornamental shade tree



Hackberry

- Scientific Name: *Celtis occidentalis*
- Growth form: Medium to large tree up to 80 feet; oblong crown with many small branchlets
- Bark: Grey, smooth on young trees and soon bearing “warts,” becoming rough and scaly on old trees
- Wood: Heavy, soft, close-grained, pale yellow
- Leaves: Alternate, simple with ovate blades
- Habitat: Low woodlands
- Distinct uses: Fence posts, furniture



Hickory, Shagbark

- Scientific Name: *Carya ovata*
- Growth form: Medium to large tree up to 80 feet tall; 3.5 feet in diameter
- Bark: Gray; separating into long, “shreddy” scales giving the trunk a shaggy appearance
- Wood: Heavy, hard, light brown, close-grained
- Leaves: Alternate, pinnately compound, 5-7 leaflets
- Habitat: Shaded woods
- Distinct uses: cabinets, tool handles, baseball bats, smoking wood (for flavor)



Kentucky Coffee Tree

- Scientific Name: *Gymnocladus dioica*
- Growth form: Medium to large tree up to 85 feet tall with a trunk diameter of 2.5 feet
- Bark: Dark gray, deeply furrowed and scaly at maturity
- Wood: Heavy, strong, durable, coarse-grained, reddish-brown
- Leaves: alternate, doubly pinnately compound with many leaflets
- Habitat: Rich, often bottomland, woods
- Distinct uses: fence posts, fuel, rough construction and wooden bowls



Locust, Honey

- Scientific Name: *Gleditsia triacanthos*
- Growth form: Medium tree up to 70 feet tall; trunk diameter up to 3 feet
- Bark: Dark brown, deeply furrowed, and scaly at maturity
- Wood: Hard, strong, coarse-grained, reddish-brown
- Leaves: Alternate, often doubly pinnately compound
- Habitat: Moist, wooded ravines, thickets, along roads
 - Distinct uses: Fence posts, coarse construction



Maple, Silver

- Scientific Name: *Acer saccharinum*
- Growth form: Medium to large tree up to 100 feet tall; 5 feet in diameter
- Bark: Grey or silvery, smooth at first, becoming loose and scaly or somewhat shaggy when mature
- Wood: Hard, close grained, pale brown
- Leaves: Opposite, simple, palmately 5-lobed
- Habitat: Wet soil
- Distinct uses: furniture, fast growing shade tree



Maple, Sugar

- Scientific Name: *Acer saccharum*
- Growth form: Medium to large tree up to 80 feet tall; diameter up to 3 feet; rounded crown
- Bark: Gray/dark brown, furrowed
- Wood: Hard, dense wood of interest in timber markets

- Leaves: Opposite, simple, palmate
- Habitat: Moist woods
- Distinct uses: sugar maples are famous for producing maple syrup, hardwood flooring, furniture and cabinets



Oak, Bur

- Scientific Name: *Quercus macrocarpa*
- Growth form: Large tree up to 120 feet tall; trunk diameter up to 5 feet
- Bark: Dark brown or yellow brown, deeply furrowed
- Wood: Heavy, hard, durable, close-grained, brown
- Leaves: Alternate, simple; coarsely round-toothed
- Habitat: Dry ridges to bottomland woods
- Distinct uses: cabinets, ship-building, tight cooperage



Oak, White

- Scientific Name: *Quercus alba*
- Growth form: Large tree up to 100 feet tall; diameter up to 3 feet
- Bark: Gray/whitish with gray patches, shallow furrows
- Wood: Heavy, hard, strong, durable, coarse-grained, pale brown
- Leaves: Alternate, deeply lobed, rounded
- Habitat: Moist woods, wooded slopes, dry woods



Osage Orange

- Scientific Name: *Maclura pomifera*
- Growth form: Medium tree 40 feet tall; trunk diameter up to 1 foot; stout branches
- Bark: Light grey-brown tinged with orange, separating into shaggy strips
- Wood: Heavy, hard, flexible, durable, coarse-grained, orange when first cut, becoming brown
- Leaves: Alternate, simple; blades ovate
- Habitat: Hedge rows, woods
- Distinct uses: Bows, fence posts, railroad ties, tool handles; often planted as a windbreak

**Not a native species in Illinois



Persimmon

- Scientific Name: *Diospyros virginiana*
- Growth form: Medium tree up to 50 feet tall; diameter up to 1 foot
- Bark: Dark grey to black, broken at maturity into square shaped blocks
- Wood: Heavy, hard, heartwood nearly black
- Leaves: Alternate, simple; elliptic to oval blades
- Habitat: Dry woods, rich bottomland woods, edge of fields, fence rows
- Distinct uses: Golf club heads, billiard cues



Pine, White

- Scientific Name: *Pinus strobus*
 - Growth form: Tall tree well over 100 feet tall; diameter sometimes 3 feet, cone shaped crown
 - Bark: Brown, divided into broad ridges by shallow fissures
 - Wood: Lightweight, soft, light in color
 - Leaves: Needles in clusters of 5, 3-5 inches long
 - Habitat: Moist woods, wooded slopes
 - Distinct uses: framing lumber, plywood, OSB
- **Not a native species in Illinois



Sycamore

- Scientific Name: *Platanus occidentalis*
- Growth form: Large tree sometimes more than 100 feet tall, trunk diameter up to 8 feet
- Bark: Brown with thin, flat scales; exposed white patches at tree top
- Wood: Hard and strong
- Leaves: Alternate, simple; 3-5 sharp pointed lobes
- Habitat: Bottomland near lakes, rivers, and streams
- Distinct uses: furniture, interior finishing, planted as an ornamental for fast growing shade tree



Walnut, Black

- Scientific Name: *Juglans nigra*
- Growth form: Large tree up to 150 feet tall, up to 5 feet in diameter
- Bark: Black, thick, deeply furrowed
- Wood: Hard, heavy, coarse-grained, dark brown
- Leaves: Alternate, aromatic, pinnately compound

- Habitat: Rich woodlands
- Distinct uses: furniture, interior finishing, cabinets, edible nuts

