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GIFFORD PINCHOT, Forester.

Walter Mulford
FOREST PLANTING LEAFLET.

BUR OAK (*Quercus macrocarpa*).

FORM AND SIZE.

The bur oak is one of the largest trees found in central North America. It frequently attains a height of from 80 to 90 feet and a diameter of from 3 to 4 feet. Under the most favorable conditions it has reached a height of 170 feet and a diameter of 7 feet. When grown free the crown is large and heavy; in the forest it is usually contracted and covers only the upper part of the tree.

The distinguishing feature of the bur oak is that from which it gets its name—the mossy fringe about the rim of its deep acorn cup. The leaf is large and deeply lobed and resembles that of the white oak. When the twigs are from three to four years old they begin to develop corky wings, which sometimes attain a width of an inch or more. These disappear as the branch grows older, and consequently are seen only on the younger growth.

RANGE.

The natural range of the bur oak is from Manitoba to Texas, and eastward to the Atlantic coast. It is commonest and most important in the lowland forests of the Mississippi basin, where it is found associated with white oak, basswood, white ash, cottonwood, black walnut, and several hickories. In the Dakotas and about the Great Lakes it sometimes occurs in pure stands, forming the characteristic "oak openings." East of the Allegheny Mountains it is comparatively rare and local, and near the northern and northwestern limits of its range it dwindles to a mere shrub. Bur oak may be planted on good soils almost anywhere east of the ninety-eighth meridian and in favorable situations somewhat farther west.

SILVICAL QUALITIES.

The bur oak is best suited to deep, rich, river-bottom soils. It will maintain itself in poorer upland localities, but it is recommended for planting only where the soil is fairly good, moist, and well-drained, and where protracted droughts are infrequent. It is rather intolerant of shade, and will not thrive beneath the crowns of taller trees.

The rate of growth, except under the best conditions, is somewhat slow, and is about like that of white oak. Neither grows so rapidly as red oak. The bur oak is subject to comparatively few pests or diseases.

ECONOMIC USES.

The bur oak is one of the most valuable hardwood trees in North America. The wood is heavy, hard, very strong, and durable. In the markets it is not, and need not be, distinguished from white oak, and it is used for the same purposes. The heartwood makes especially good fence posts and railroad ties, but the sapwood does not last long in the ground.

The tree is highly desirable for planting about the home, as well as for general forest planting where quick growth is not important.

METHODS OF PROPAGATION.

The bur oak reproduces freely both by acorns and by stump sprouts. The acorns, like those of all the white oaks, mature in one season, and germinate soon after falling, unless they are collected and cared for. They should therefore be planted, if possible, in the fall, either in seed beds or in their final place. Mice and squirrels are fond of acorns, and sometimes destroy plantations made in the fall. Where this is to be feared, or where for any other reason it is necessary to hold them over until spring, the acorns may be stored between layers of moist sand.

To secure vigorous sprouts the trees should be felled between November and March, and the stumps should be cut low and left smooth and slanting on top. Sprouts then start close to the ground, where they can soon develop root systems of their own and become self-supporting. The slanting stump causes the rain water to run off, and thus helps to prevent rapid decay.

The bur oak has one well-developed taproot, and, in moderately rich and moist soils, many spreading secondary roots close to the surface. In dry soils the roots seek moisture at considerable depth.

PLANTING.

It is usually advisable to plant acorns in their permanent place in the field, for, like all oaks, the bur oak is not easy to transplant when once fairly established, because of its stout taproot.

Where the area to be seeded can not be plowed, the acorns should generally be planted in holes about 4 feet apart each way, although the proper distance will depend to some extent upon local conditions. Three or four acorns should be placed in each hole and covered with about 1½ inches of earth. If the planting is done on plow land, the soil may be prepared as for any field crop.

Bur oak can be grown in pure stands, but it is often desirable to mix one or two slower-growing species with it, in order to force the trees to grow tall and to clear the stems of their lower branches.

Bur oak should not be planted with trees which grow very rapidly, nor where the climate is so dry that the soil needs much cultivation to preserve its moisture. Care should be taken to keep the little trees from being smothered by grass and weeds, to keep out stock and fire, and to let the plantation acquire the character of a forest as soon as it can. Weeds and litter on the ground, and shrubs that stand below the crowns of the trees, are good and should not be interfered with.

Approved.

JAMES WILSON,

Secretary.

WASHINGTON, D. C., *November 24, 1906.*

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