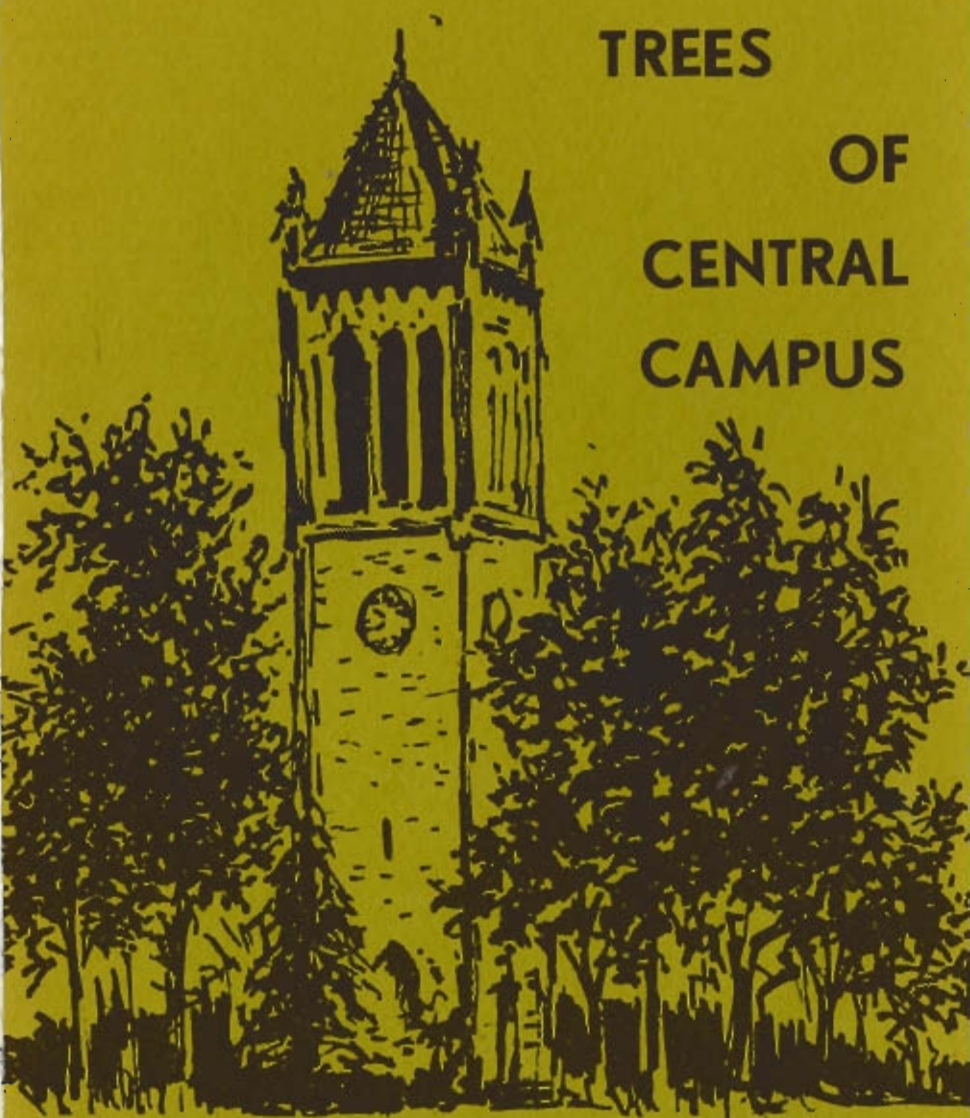


TREES OF CENTRAL CAMPUS



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Cover by Phyllis Reed

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Welcome to Iowa State University

The fresh green of spring, cool, deep shade of summer, brilliant orange and red autumn leaves, barren branches scratching the winter sky offer a kaleidoscope of color and texture for people associated with Iowa State. Through this guide we would like to share some of the beauty of our campus.

In consideration of the visitor's feet and the length of this booklet, this walk concentrates on central campus. Central campus is one of the most picturesque and most photographed areas at Iowa State because of the broad lawns and the varied trees surrounding the campanile. Some of the trees are common in Iowa neighborhoods; others, like the Ginkgo of eastern China, are far from their native habitat.

We hope you enjoy your walk in central campus. Any suggestions for improving and expanding this booklet can be addressed to Botany Club, Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa 50010.

Our thanks to Ann Brown and Mike Hein who originally proposed the idea for this guide, and to Dr. Fred Smith, Dr. Lois Tiffany, and Dr. George Knaphus for their encouragement and technical assistance.

Jerry Low
Colleen Reed

May 1971

Revised May 1972



Oak
by Phyllis Reed

LANDSCAPE HISTORY

When Iowa State College was established, the site chosen included a variety of soil types and terrains which increased the potential of the college for conducting agricultural research.

Since the college opened, it has been through six general stages and philosophies of development.

1869-1884

Dr. A. S. Welch, Iowa State College's first president, envisioned a college nestled in a natural park-like setting surrounded by the rich Iowa prairie. In the spring of 1869 President Welch with the help of about 50 college boys set out to develop his plans. The first lawn was blue grass. Trees came from the farm house nursery or the nearby Squaw Creek bottom land. Slow and fast growing trees were interspersed and the fast growing trees were removed once the hardier slow growing trees matured.

1884-1906

The college expanded rapidly from 315 students in 1883 to 1,595 students in 1906. Buildings sprang up irregularly around the central mall. The buildings, though oriented north-south, were landscaped individually without regard for an overall plan. An extensive walk system connected the buildings and gave access to the plantings started by President Welch.

Zones were developed for specific colleges with engineering on the west side of the mall and agriculture on the east.

From 1891 until 1907, a railroad crossed central campus linking Ames and Morrill Hall. It was then replaced by an electric trolley which was located slightly north of the railroad.

1906-1923

For a short time there was a revival of classical architecture with massive symmetrical proportions plus symmetrical landscape to symbolize dignity and permanency.

About 1916 the trend returned to a sculptured natural park similar to President Welch's idea. The newer theory was a sequence of flowing masses to be viewed while moving. The older theory was masses to be enjoyed from specific points.

In 1916, \$10,000 was donated to construct Lake LaVerne.

1923-1950

Buildings continued according to categories of college activities. The landscape also became more ordered and designed for specific functions.

1951-1968

Since no overall concept or long-range plan was in effect, individual decisions were made for locating and landscaping new buildings and parking lots.

1968

A guide for campus development was outlined. According to this plan, central campus is to remain open with clusters of trees. The arboretum, flood plain, Pammel Woods, and the golf course are not to be used for buildings.

Moving out from central campus toward academic zones, the landscape is to become more formal to correspond to the defined architecture. The plants are to be mostly hardy local plants with some other carefully selected and located species for study purposes.

This walk starts by the fountain at the north entrance of the Memorial Union, weaves across central campus, and ends at the north side of central campus at Bessey Hall, the botany building with a greenhouse on the top floor. Ready to start? Turn to the map on the back cover. The numbers on the map match the numbers in the text below. Follow them in numerical order and you should arrive at Bessey Hall in approximately 30 minutes.

1. Swiss Mountain Pine Pinus mugo

The Swiss mountain pine is a low, prostrate shrub or small tree that originally came from Europe. The needles are short, occur in pairs, and are closely crowded on the branches. It is popular as an ornamental for landscape gardening.

2. Winged Euonymus Euonymus alatus

An erect, tree-like shrub, the winged euonymus has dark green leaves that are finely toothed and pointed at the tip. They are arranged opposite each other on branchlets that bear corky wings along their sides. Originally from Asia, it is popular as an ornamental because of its bright red fall foliage.

3. White Pine Pinus strobus

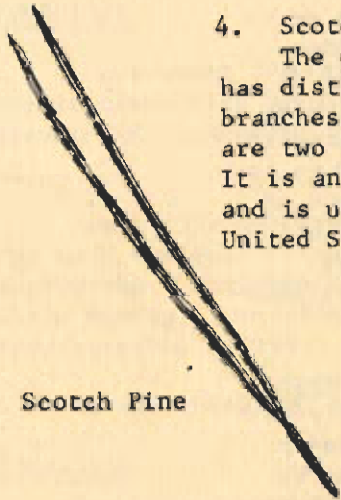
Once one of America's most valuable lumber trees, the white pine is now planted as an ornamental. The blue-green four-inch needles grow in clusters of five. The branches extend from the trunk at right angles and are arranged in whorls. The cones are cylindrical and about six inches long. Native to the Northeast and Great Lakes states, the wood was used for masts of the New England clipper ships.



White
Pine

4. Scotch Pine Pinus sylvestris

The crooked trunk of the Scotch pine has distinctive orange bark on its upper branches. The blue-green, twisted needles are two inches long and occur in pairs. It is an important timber tree in Europe and is used as an ornamental tree in the United States.



Scotch Pine

5. Douglas-fir Pseudotsuga menziesii

The Douglas-fir has the distinction of being the most important timber tree in the United States and the second best selling Christmas tree. Not a true fir, its flat, blue-green needles have two white lines on the lower surface and a groove on the upper surface. The small, oval cones hang from the branches and are unique because of the bracts which project between the scales. This Pacific Coast tree is named after David Douglas, who explored North America from 1825 to 1834, collecting plants for the Horticultural Society of England.



Douglas-fir.

6. Sugar Maple Acer saccharum

A native of New England, the sugar maple is a large spreading tree. The broad leaves have five pointed lobes. Clusters of greenish-yellow flowers bloom at the time that the leaves unfold in early spring and produce winged seeds. The wood is strong and heavy, making it valuable for furniture and flooring; and, of course, the sap is cooked down to make maple syrup.

7. Japanese Tree Lilac Syringa amuren-
sis var. japonica

The Japanese tree lilac is a small tree with rounded leaves that are smooth and glossy green on the upper surface and hairy beneath. The flowers grow in large clusters and make the tree a prized ornamental.

8. Hawthorn Crataegus sp.

The native hawthorn is a small tree and becomes established in open pastures where it provides shelter for many birds. It has toothed, lobed leaves on its sharp-thorned twigs and is covered with white, rose-like flowers in June. The small red fruits hang on the branches throughout the winter. The wood is used for tool handles and canes and it is a popular ornamental tree.



Hawthorn

9. Eastern Larch or Tamarack Larix
laricina

The Eastern larch is a conifer that has clusters of soft, green needles during the growing season. In the fall, the needles drop and the tree remains naked until spring. The young cones are bright purple-red in the early spring in elegant contrast to the green young needles. Later the cones become woody and gray-brown. The trunk bark is scaly and reddish-brown. Found in bogs and swamps in Canada and the Great Lakes area, the larch is used for poles and railroad ties.

10. Norway Spruce Picea abies

The pyramidal shape of the Norway spruce, accentuated by the drooping branches which sweep close to the ground, make it valuable as an ornamental as well as a timber tree. The square yellow-green needles extend from all around the twigs. The five-inch cones hang from the uppermost branches. Introduced from Europe, it has become naturalized in the western states. A Norway spruce is the official campus Christmas tree.



Black Maple
Fruit

11. Black Maple Acer nigrum

The black maple is a native tree common on the upper slopes in wooded areas. It has three-lobed leaves with veins radiating from the leaf base like the fingers of a hand. They occur opposite each other on the twigs. The small, bright yellow flowers appear with the leaves and produce double-winged fruits. The tree closely resembles the sugar maple and its sap is also used for making maple sugar.

12. European Larch Larix decidua

The European larch is an ornamental tree native to the Alps. Though it shares many characteristics with the Eastern larch, its cones are bigger, averaging an inch in length. The needles are yellow-green and appear on the yellowish twigs in rosettes of thirty. This tree was planted extensively in the eastern states and has become naturalized in some areas.

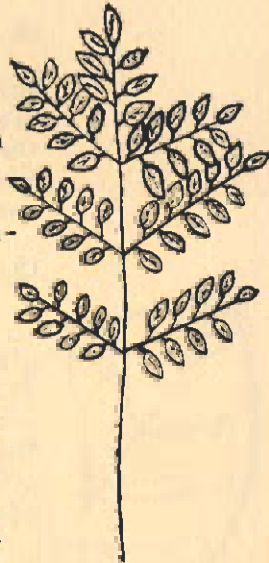
13. English Oak Quercus robur

The stately English oak resembles our native white oak. Its five-inch long leaves have seven to nine rounded lobes and are bright green. The bark is furrowed but not scaly, and the acorns hang on two inch stalks.

14. White Poplar

Populus alba

A widely planted ornamental and shade tree, the white poplar is native to Eurasia and has become naturalized in America. Both the buds and the undersides of the coarsely toothed leaves are covered with a mat of white hairs. The bark on the younger branches is a pale gray or white.



15. Kentucky Coffee-tree

Gymnocladus dioicus

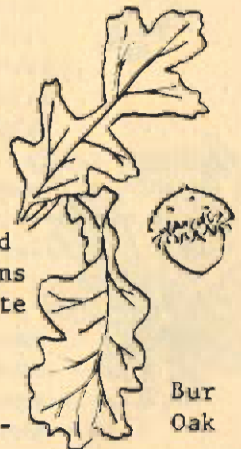
The handsome Kentucky coffee-tree occurs in river bottoms throughout its Mid-western range. The large multiple leaves, divided into approximately forty leaflets, are present only during the growing season, thus the name *Gymnocladus* which means "naked branch". *Dioicus* means "in two households", referring to the fact that each tree bears flowers of one sex only. The short, reddish-brown pods produced from the female flowers of this tree contain round seeds which were a substitute for coffee in colonial days.

Kentucky
Coffee-tree

16. Bur Oak

Quercus macrocarpa

The distinctive bur oak is often seen spreading its heavy gnarled limbs in bottom land pastures of the North Central states. Its long, lustrous, dark green leaves are nearly divided in half between the rounded lobes. *Macrocarpa* means "large fruited" and refers to the one and a half-inch long acorns with a fringed cup. The bur oak is the state tree of Iowa.



Bur
Oak

17. White Fir

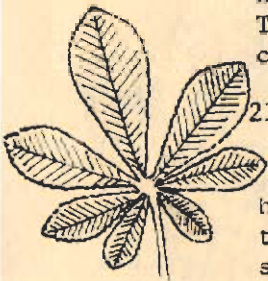
Abies concolor

This Rocky Mountain tree has flat, silvery blue-green leaves arranged spirally around the stem. The olive green cones stand erect on the twigs and the bark is gray and deeply furrowed. Planted extensively as an ornamental, the lumber is also used for paper pulp.

18. Austrian Pine Pinus nigra
The Austrian pine is native to Eurasia and is used for fuel wood and ornamental planting. The bark is dark gray and ridged; the large buds are sticky with resin. The long needles grow in pairs as also do the two-inch cones.

19. Russian-olive Elaeagnus angustifolia
An exotic ornamental, the Russian-olive is extremely resistant to drought and cold. Its lance shaped leaves have silver scales which makes them glint in the sun. The oval yellow fruit is also covered with silver scales. Its fragrant white flowers add greatly to its beauty.

20. Eastern Redbud Cercis canadensis
The herald of spring in the eastern and southern states, the redbud's covering of small purplish-pink flowers is quickly succeeded by broad, heart-shaped leaves with smooth margins. The fruit is a pea-like pod hanging from the spreading branches. Colonists called it "Judas tree", named for the Apostle said to have hung himself on its Old World relative. The flowers, fried, are considered a delicacy in Mexico.



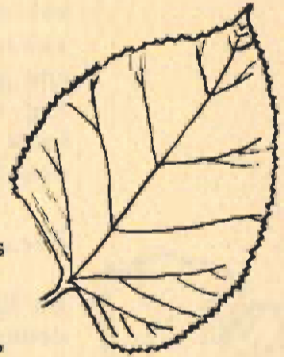
Horsechest-
nut

21. Horsechestnut Aesculus hippocastanum
A native of the Balkaan mountains, the horsechestnut is widely planted as a shade tree in America. The multiple leaves have seven toothed leaflets, the broadest one in the middle, and the leaves occur opposite each other on the twigs. The buds are covered by a sticky gum. This tree is known for its unusually beautiful white flowers which appear in showy clusters in the spring.

22. Colorado Blue Spruce

Picea
pungens

The Colorado blue spruce is probably the prettiest and best known of all the spruces. Its blue-green, four-sided needles have a silvery bloom, and the rigid branches give it a perfect pyramidal shape, making it a valuable tree as an ornamental. The three-inch cones are light brown and hang from the branches. The state tree of Colorado and Utah, it is found mainly in the central Rocky Mountains.



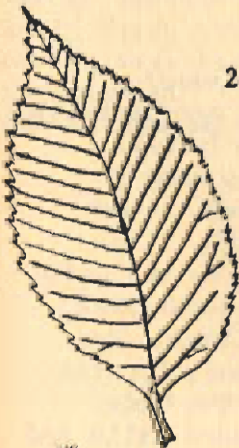
23. Linden or American Basswood

Tilia
americana

The linden tree is a favorite of bees because of the clusters of creamy white fragrant flowers which appear in June or July. The fruit is gray, round, and hard, and hangs from a leafy bract. The leaves are coarsely toothed with a lopsided, heart-shaped base. Because the wood has no taste or odor, it is often used to construct food containers.



Linden leaf and fruit



24. American Elm

Ulmus americana

The largest of the six native elms of the United States, the American elm is a favorite shade and ornamental tree. The light green leaves are doubly toothed, smooth on the upper surface, and have an unequal base. Its oval fruit is dispersed on wind currents by a circular wing. Found on rich bottom land areas east of the Rocky Mountains, its vase-shaped silhouette is fast becoming a memory because of the wide occurrence of elm wilt disease.



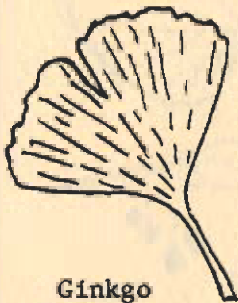
Elm leaf and fruit

25. Paper Birch Betula papyrifera

This northern tree is conspicuous because of its creamy-white bark that peels in paper-thin layers and reveals the orange inner bark. The leaves are oval, doubly toothed, and dark green. The fruit is a winged nutlet. Birch bark, completely waterproof, once floated the American wilderness rivers as Indian canoes. Today, the soft, elastic wood is used for conducting batons. Please note that removal of bark is injurious to the health of the tree!

26. Ginkgo or Maidenhair Ginkgo biloba

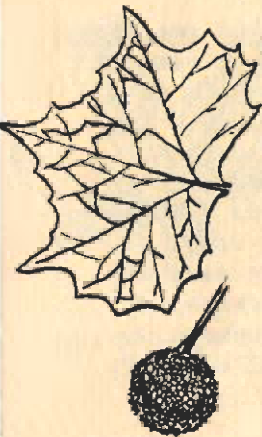
Ginkgo means "white mist" in Chinese and is the most revered of all trees in that country. It is also the oldest living type of tree. The leaves are fan-shaped with parallel veins. The fruit, resembling a plum, has ill-smelling yellow flesh and an edible nut. The ginkgo is almost immune to problems of disease, insects and air pollution, and is considered by some to be the best choice for a shade tree.



Ginkgo

27. Eastern Sycamore or Buttonwood Platanus occidentalis

The sycamore, one of the largest broadleaf trees in America, is easy to identify because of the mottled, cream colored bark of the upper trunk. This light colored bark is exposed by the splitting of the red-brown, scaly outer bark. The leaves are broadly oval, lobed, and coarsely toothed. The leaf petioles are hollow at the base and cover the buds. The fruits, which are round seed balls and hang on the tree throughout the winter, have suggested the popular name "buttonwood". Native to the river bottoms of the Midwest, its wood is used for boxes and furniture.



Sycamore
leaf and fruit

28. Staghorn Sumac Rhus typhina

The velvety twigs, resemble the budding horns of deer, are responsible for the staghorn sumac's unusual name. The cone-like clusters of red, hairy fruits are borne at the tips of the branches and when immature can be used to make a refreshing drink similar to pink lemonade. Found in the Midwest, this shrub or small tree has a high concentration of tannic acid which once made it useful for tanning hides.

29. Virginia Creeper Parthenocissus quinquefolia

The Virginia creeper is found clinging to walls and tree trunks in the eastern and central states. Its coarsely toothed leaves are hairy on the underside and turn scarlet in the autumn.

30. Black Cherry Prunus serotina

Black cherry, one of the most prized woods for fine furniture, was once widely used to produce cough medicine. Its round, nearly black fruits are eaten by the birds and the oval leaves have sharp teeth which curve inward. The leaves and black bark emit an odor of almond when broken.

Black Cherry



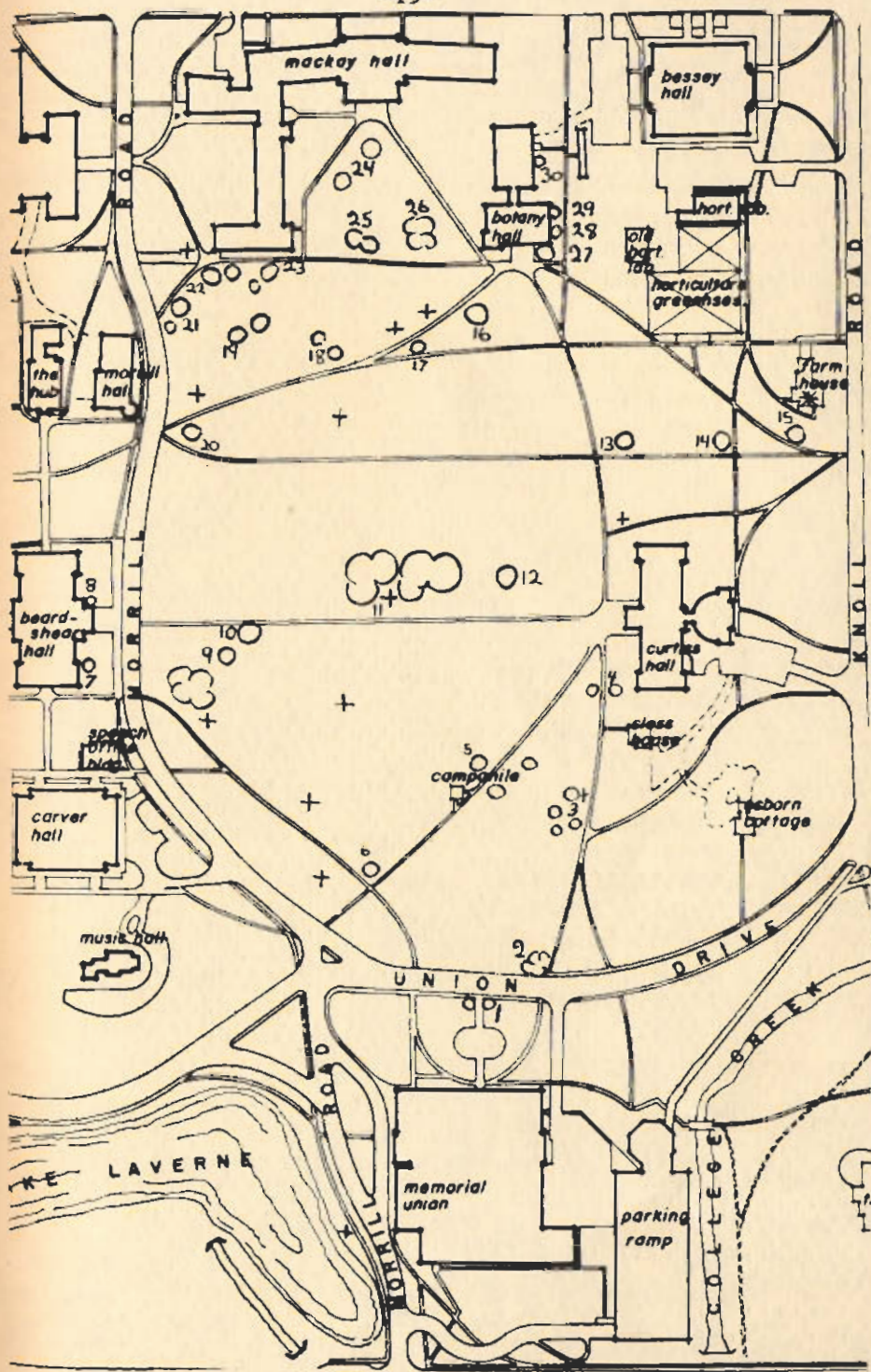
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MAP LEGEND

* National Historic Landmark

+ Memorial Trees



NOTES

