The ruffled gladiolus is a new and distinct American type created by H. C. Kundred of Goshen, Indiana.

OUR WISCONSIN NATIVE TREES

By WILLIAM TOOLE, SR., Baraboo, Wisconsin.

At the recent annual meeting of the Sauk County Country Life Association, we were told of the thousands of people who visited our state last summer to enjoy the goods roads and beautiful scenery of "Wisconsin Beautiful." And, it is said, that the people from other states left thousands of dollars in return for their appreciation of sojourning within our borders.

These beauties of scenery, of lakes and streams, of hills and valleys embellished with trees and shrubs, belong to all of us, for the seeing of beautiful landscapes is free for the enjoyment of all who are capable of appreciating the grand pictures which the Creator has designed for us.

We view the pictures on every side and occasionally see an eminence which has been denuded of trees and shrubs, and, as we gaze on the bareness, we realize how drear would be the picture if there were no trees or shrubs to beautify the landscape.

Now that our state legislature has provided for rural planning committees to direct our attention to the need of saving the surroundings of natural places of scenic beauty, and perhaps to educate us to a better appreciation of the decorative uses of the sylva of our state, it seems that we should become better acquainted with the different species of our native trees.

All through the year we have the beauty of the changing colors and graceful outline of trees and shrubs on our wooded hills and by shaded watercourses. While not so distinct in contrast the changing and various shades of green of the forests in the spring are fully as charming as the more brilliant splashes of color given by the ripening of the leaves in autumn. In spring or fall the practiced eye can tell at a distance the contrasting shades of oak, maple, hickory and poplar. What an interest is given to the landscape view by the pines and birches at many prominent eminences! In the winter what a relief to the eyes is given by the blending of the dark browns and grays of the

woods with the snow view, which would be so monotonous if not thus relieved.

There is much to be seen in the woods in winter that is interesting. Then, more than at any other time, we realize how much the woodlands shelter and maintain the wild life, which is the joy of the hunter, and a pest to the farmer.

We find in the snow tracks of the tiny mouse, also the rabbit, squirrel, and fox, to deer, while about the trees we find evidences of raccoons and porcupines. Then the woodman makes the acquaintance of the friendly chickadee, and the daring nuthatch among birds. Indeed, we would sadly miss our native trees and shrubs if they were removed from our landscape, even if we retained them about our homes.

In the past we have thought of the planting of trees mainly for street and roadside decoration, with some trees about the house for shade, and we have given less thought than we should to the value of some kinds for ornamental use aside from shading purposes.

This paper is written with a desire to draw attention to the usefulness of the various species of trees, hoping that some may be led to seek a closer acquaintance with the distinctive qualities of the various genera and species of Wisconsin native trees.

A paper of this kind must necessarily be brief, but anyone interested in the subject can find closer descriptions to identify kinds in Gray's Manual of Botany.

Taking up the consideration of kinds of trees in botanical sequence, the evergreens are first in order and pines should head the list. Evergreens on private grounds are not planted as much as they should be and I think not so freely as they have been, probably because so many mistakes of placing have been made in the past.

It has been necessary to cut out many beautiful evergreens on home grounds because they have been put where there was not room for them to develop. Considered from an economic standpoint the White pine—*Pinus strobus*—is the most important of our evergreens, and, when rightly placed, there is no kind more valuable for decorative purposes.

We should bear in mind that the time will come, with age, when the conical or pyramidal form which is adopted as a stereo-

typed shape for evergreens will be outgrown, and the trees will assume a dignity of proportions making it seem out of place as a front yard ornament. Where there is room for an additional kind of pine the Red pine, sometimes called Norway pine—*Pinus resinosa*—is a good companion to our White pine. The beauty of effect of evergreens is possible and, in many places, exists through planting or sparing, entirely independent of home surroundings.

The Gray pine—*Pinus Banksiana*—is not of much importance, either in an economic or decorative way, although it is sometimes planted. When we consider the poor soil where this species is most abundant, as we see it in natural groves, we should feel thankful that the Gray pine has been created for such places.

Among the evergreens we have a deciduous conifer—the Tamarack or American larch—*Larix laricina*. The wood is useful in many ways. For ornamental planting it is more graceful in form than the European species and thrives well in ordinarily good soil, although found growing wild, mostly in swamps.

Our native White spruce—*Picea canadensis*—ranks with the best of the evergreens for ornamental plantings. It will fit into more restricted surroundings than will the White pine, but should have room and a suitable aspect.

The White spruce is so very good for planting we do not need to plant the Bog or Black spruce—*Picea Mariana*. Formerly people planted the Balsam fir—*Abies balsamea*—for ornament. It has an attractive appearance when young and small, but looks old and disappointing as soon as it fairly becomes a tree. Don't plant it for permanence.

To me the handsomest of our native evergreens is the Hemlock—*Tsuga canadensis*—also called Hemlock spruce. In the days when the soles of our shoes were all leather, lots of Hemlock bark was used for tanning. The wood is coarse grained, but is a useful substitute for pine for rough work. While of slow growth in cultivation, there is graceful beauty of the tree, which is well worth striving to secure.

The Arbor Vitae or White cedar—*Thuja occidentalis*—is so useful for posts and poles it is difficult to conceive how we can get along for need of them when they become as scarce as White pine lumber now is. We, in the southern part of the state, who usually see the White cedar only in cultivation, marvel at the

size of the poles shipped from the north part of the state for electric and telephone lines. For a clipped screen or hedge the Arbor Vitae is useful; in cultivation a number of interesting forms have been developed which have proved valuable in the nursery trade. Where there is room the Arbor Vitae is useful for variety, but cannot be our first choice among evergreens.

Our Red cedar—*Juniperus Communis*—is in disgrace, like the Barberry, and perhaps we will be ordered to banish the species. It is said that it harbors and disseminates a fungus which injures the leaves and fruit of the apple. In exposed situations the leaves sometimes in the spring become so brown as to be scarcely attractive. The natural habitat of this cedar is rocky hillsides, but it spreads to adjacent woodland pastures, and probably the eastern species—*Juniperus virginiana*—may have escaped from cultivation and seem to be a native.

Next in order comes our willows in great variety, but many kinds are more nearly shrubs than tree-like. Dr. J. J. Davis of the Botany department of the University informs me that we may safely count on the Black willow—*Salix nigra*—and the peach-leaved willow—*Salix amydaloides*—as growing into real trees. The latter makes a graceful appearing tree and deserves a place in ornamental planting.

The poplars fit well in the forests for landscape effect, and some use could be made of the Quaking poplar—*Populus tremuloides*—in ornamental planting. The species ordinarily called Yellow poplar—*Populus grandidentate*—is useful in the woods as a filler, and adds to the landscape effect. The wood is useful for box material and in cheap cabinet work. There seems to be no special place for it in ornamental planting.

The Balsam poplar or Tacamahac—*Populus balsamifera*—might be used for ornamental purposes in some situations. The fragrant resinous buds in the spring are interesting. It makes a better appearing tree than the foreign Balm of Gilead, which is often planted.

The Cotton Wood—*Populus deltoides*—is a useful, quickly growing tree, but the habit of shedding a copious supply of "cotton" in the spring, discourages planting it near to dwellings.

The walnuts—White walnut or Butternut—*Juglans cinerea*—and the Black walnut—*Juglans nigra*—are useful for nuts and

the wood, which is so valuable in cabinet work. The Black walnut makes a better appearing tree than the Butternut, which is more open in growth, while the nuts of the latter are more general favorites. They should be more generally planted for their nuts.

The hickories are an important section of our native trees. Chief among our Wisconsin natives is the Shell Bark or Shag Bark hickory—*Carya ovata.* The nuts are general favorites and the wood is so useful in the furnishing of farm implements. The mature trees have a fine appearance and are often spared on the farms, and it would be planted more than it is if transplanting was not so difficult. The distinguishing feature of the Shag Bark hickory is the loose hanging strips of bark, which can be readily stripped from the tree and are useful to the camper for kindling out-of-doors fires. The White Heart hickory or Mocker nut—*Carya alba*—is a tree having the general appearance of the Shag Bark, except in the bark and nuts. When cut into the wood shows much more white, making it useful for ax helves. The bark does not loosen and strip off and the nuts have very thick shells. The Bitternut hickory—*Carya cordiformis*—is a smaller tree than the preceding with smoother bark and more slender branches. The nuts are thin shelled, but too bitter for use. The name Pig Nut hickory is sometimes used here, but I cannot learn that this species—*Caray glabra*—is native to Wisconsin.

The Hop Hornbeam—Leatherwood, or Ironwood—*Ostrya virginiana*—is among the smallest of our native trees. The curious seed vessels, like clusters of hops, always attract attention. For ornament, but not for shade, it is worthy of a place in any fair sized collection.

The Beech—*Fagus grandifolia*—is plentiful in the eastern part of the state, but rare otherwise. The nuts would be good, if not so disappointingly small. The wood has value in many ways, but I do not know if the tree has value for ornamental planting.

The birches are an interesting class of trees and deserve to be more generally planted for ornament. I do not think we have the Black birch—*Betula lenta*—a native of this state. Some claim it, but I think they confuse it with the botanical name of the Red or River birch—*Betula nigra.* The best known and most common of our birches is the White birch, also called Paper and Canoe birch. We associate it in our minds with the

White pine, because it often grows in like situations and forms a notable contrast with it. At many a prominent height the White birches form a distinct addition to the landscape. As an adjunct to the lawn, our native White birch is superior in usefulness to the European cut-leaved variety. I cannot learn for certain that the other White, or Canoe birch—*Beula pendula*—is a native of this state. Doctor Davis says he thinks it is found near Racine.

I have never seen the Yellow birch—*Betula lutea*—as a planted tree, but it makes so fine an appearance in the woods, I think it should be freely made use of if it will bear transplanting. The filmy loosening layers of yellow gray bark are noticeable, but not so showy as that from the White birch. The stems and young buds are slightly aromatic.

The Red or River birch—*Betula nigra*—is quite plentiful along the Wisconsin river, especially on the right side above Portage, and, I suppose, in other parts of the state. As may be seen on grounds near Madison, the Red birch is very attractive as an ornamental tree.

The oaks form a very important section of our native trees. For economic value of wood, with usefulness for shade and ornament, probably the White oak—*Quercus alba*—takes the lead. We always think of sturdiness and endurance in connection with the oaks. In the early days the acorns gave valuable food for our hogs. In implements, furniture or buildings the wood is valuable. One needs a chapter or a book to tell of the usefulness of the oaks.

The Bur, or Over Cup oak—*Quercus macrocarpa*—grows to a noble tree in favorable situations, but when starved on poor soils, the trees have a decrepit old-age appearance. We see some grand specimens of this species of oak as we ride through many parts of the south half of Wisconsin. The Swamp White oak—*Quercus bicolor*—is found growing in the rich lands bordering creeks or rivers and is of more slender growth, but, otherwise, is very much like the White oak. The wood has the same valuable qualities where strength is needed. We have in southern Wisconsin the Chestnut oak—*Quercus Muhlenbergia*—I am told. The leaves, resembling the chestnut, are a distinguishing feature of this tree. Gray's Manual of Botany locates the Shingle or Laurel oak—*Quercus imbricaria*—to southern Wisconsin. The leaves are described as smooth-edged and lanceolate in form.

The following oaks, Red oak, Yellow oak, and *Quercitron* or Yellow Barked oak, also called Black oak, might be placed in a class by themselves, because, through a general resemblance, people often confuse them. The Red oak—*Quercus rubra*—is the most distinct of the three. It forms a tall tree in heavy woods, where the other two are seldom found, but it is seldom found with the Yellow oak. The wood is coarse grained and is not as good for firewood as the others. Leaves and acorns are large.

The Yellow oak, sometimes called Black oak—*Quercus elipsoidalis*—sometimes colonizes on loamy soil, but often mingles with real Black or *Quercitron* oak on light and poorer soils, and but rarely in rich woods where the maples and basswoods grow. The leaves are deeply cleft and the trees are often mistaken for the Pin oak of farther south. The Black or *Quercitron* oak—*Quercus velutina*—is most commonly found growing in poor sandy soil. The bark on mature trees is dark brown and rough. The inner bark is orange yellow and is of especial value for tanning. These latter species of trees are valuable for shade or ornamental purposes. *Q. elipsoidalis,* when in groves, is subject to injury by a fungus which infests the roots, killing young thrifty trees. I have found trees which I think were hybrids of the White and the Over Cup oaks, and it is probable that the other species make natural crosses.

We have several trees belonging to the Nettle family—the elms and the Hackberry. There is probably no species of distinctly American tree more generally planted for shade and ornamental purposes than is the American White elm—*Ulmus americana.* In mature trees, its distinguishing features are unmistakable, but in planting the mistake is often made in substituting the Red elm. There is so much diversity of form in full grown trees of the White elm it seems as if it would be worth while for nurserymen to propagate forms of special attractiveness. The wood is useful in secondary ways.

The Rock elm—*Ulmus racemosa*—has much the same general appearance as the White elm. The principal difference is in the form of the flower clusters and the bark of branches on young trees. The wood is valuable for lasting qualities, resisting decay, and is also valuable for good wearing qualities. The Red or Slippery elm—*Ulmus fulva*—grows tall, but not to so nearly a large tree as the White elm. It has no particular value as a

shade tree and is but secondary for ornament. The mucilaginous inner bark has some value in medicine and children like to chew it. The wood is light, strong and durable. In the old days we liked the Red elm for ox yokes and in sled construction. If the wood was more plentiful, it would be still more often used in boat building.

The Hackberry or Sugar Berry—*Celtis occidentalis*—belongs to the same natural order as the elm. This tree has much value for ornamental and shade planting. It is valuable for street planting where a tree less spreading than the White elm is desired. It is variable in size and some trees in the forests furnish fine saw logs, yielding lumber valuable for hard wood flooring. The leaves are peculiar in form, having slanting bases. The berry-like fruit is sweet and eatable, but the pulpy covering is too thin to be useful. The birds appreciate the berries.

A few species in the Rose family may be included in our list of trees. Our native Crab apple—*Pyrus ioensis*—is deservedly popular for the beautiful and fragrant clusters of flowers. There is much variation in fruit and flowers. The best of the fragrant fruit is valuable for jelly and sauce. Scions of the native crab unite readily in grafting with common apple roots and it would be well worth while to propagate some of the most showy varieties. The Mountain ash—*Pyrus americana*—when fruiting is a very showy small tree, and there are many places where it might be planted with advantage. The showy fruit is not agreeable enough in taste to be edible. The Wild Black cherry—*Prunus serotina*—or Rum cherry, we used to call it in Rhode Island, is a finely appearing tree when in mature form. In furniture the finished wood shows a beautiful grain and color. The birds appreciate the fruit, to which they are welcome. The Wild Red or Pin cherry—*Prunus pennsylvanica*—makes a small tree, which might be useful as ornamental but for its persistent sprouting from the roots. It is notable because the cultivated kinds of cherries will unite with it in budding.

Our native plums are in great variety in the wild state and crossing in cultivation has produced an increase in kinds. We have native the types of the Canada plum—*Prunus nigra*—and our more common Wild plum—*Prunus americana*. Our native plums are beautiful when in bloom, yet their planting is recommended mostly for utility of the fruit.

We might say much in praise of the maple genus, because of symmetrical and graceful trees, refreshing green or red-tinted leaves—in spring giving some of the earliest spring flowers, and painting with such brilliant colored foliage in autumn. The wood is useful in so many ways, while maple syrup and maple sugar have distinctive qualities which we all enjoy. The Sugar maple—*Acer saccharum*—heads the list for economic value, and is a leader among ornamental shade trees. The leaves are among the brightest showing autumn coloring. The Silver maple—*Acer saccharinum*—one of the soft maples, is found native generally near river banks. It makes a fine tree, more openly spreading than the Sugar maple. In some places it is badly infested with the cottony maple scale, but where free from this enemy it is well worth planting. The Red or Swamp maple—*Acer rubrum*—is found in our high ridges of clay soil even more plentiful than in swamps. It does not make so large a tree as either of the two species mentioned. The trees are attractive in the spring because of the abundance of red flowers and in the fall the ripening leaves vie with those of the Sugar maple for brightness of color.

The Box Elder—*Acer negundo*—makes fairly good fire wood.

The Basswood—*Tillia americana*—called Linn in the south and Linden in Europe, gives a dense shade. The tree is symmetrical when grown in the open and is a useful street tree. The light, strong wood is useful in manufacture. Formerly the inner bark was used for the same purposes to which Raffia is now made use of. The flowers are valuable as abundant sources of honey.

The wood of the White ash—*Fraxinus americana*—is so useful it is a cause for regret that so much has in the past gone for firewood. It forms a shapely tree and gives good shade. The specimens which have been left about farm homes in the timber lands make a fine appearance. I am informed that we have also the Red ash—*Fraxinus pennsylvanica*—and the Green ash, which in Gray's Manual is given as *F. Canceolata*—a variety of the Red ash. We are also credited with the Blue ash—*Fraxinus quadrangulata*. White ash certainly deserves to be more often planted. Perhaps the three other kinds are desirable. The Black ash—*Fraxinus nigra*—with tall trunk, not heavily branched, and with gray, flaky bark, is distinct in appearance, but not specially attractive. The wood furnishes good basket material and barrel hoops. It will flourish in any good soil, although found wild mostly in low ground.

In Gray's Manual Wisconsin is credited with the Tulip tree—*Liriodendron tulipifera*—and the Kentucky Coffee tree—*Gymnocladus dioica.* For identification of species, a botanical description is necessary. Those who are interested are referred to Gray's Manual of Botany.

The following list of our native trees is given:

COMMON NAME	BOTANICAL	COMMON NAME	BOTANICAL
White pine	*Pinus strobus*	Swamp oak	*Quercus bicolor*
Red pine	*Pinus resinosa*	Chestnut oak	*Quercus Muhlenbergia*
Gray pine	*Pinus Banksiana*	Red oak	*Quercus rubra*
Tamarack	*Larix laricina*	Yellow oak	*Quercus elipsoidalis*
White spruce	*Picea canadensis*	Black oak	*Quercus velutina*
Black spruce	*Picea mariana*	Laurel oak	*Quercus imbricaria*
Balsam fir	*Abies balsamea*	White elm	*Ulmus americana*
Hemlock	*Tsuga canadensis*	Rock elm	*Ulmus racemosa*
Red cedar	*Juniperus communis*	Red or Slippery elm	*Ulmus fulva*
Black willow	*Salix nigra*	Hackberry	*Celtis occidentalis*
Peach Leaved willow	*Salix armygdaloides*	Wild Crab Apple	*Pyrus ioensis*
Quaking poplar	*Populus tremuloides*	Mountain ash	*Pyrus americana*
Yellow poplar	*Populus grandidentata*	Wild Black cherry	*Prunus serotina*
Balsam poplar	*Populus balsamifera*	Pin cherry	*Prunus pennsylvanica*
Cotton Wood	*Populus deltoides*	Canada Wild plum	*Prunus nigra*
Butternut	*Juglans cinerea*	Wild plum	*Prunus americana*
Black walnut	*Juglans nigra*	Sugar maple	*Acer saccharum*
Shellbark hickory	*Carya ovata*	White maple	*Acer saccharinum*
Mocker Nut	*Carya alba*	Red maple	*Acer rubrum*
Bitter Nut	*Carya cordiformis*	Box Elder	*Acer negundo*
Hop Hornbeam	*Ostrya virginiana*	Basswood	*Tillia americana*
Yellow birch	*Betula lutea*	White ash	*Fraxinus americana*
Red or River birch	*Betula nigra*	Red ash	*Fraxinus pennsylvanica*
White birch	*Betula alba*	Blue ash	*Fraxinus quadrangulata*
Beech	*Fagus grandifolia*	Black ash	*Fraxinus nigra*
White oak	*Quercus alba*	Tulip tree	*Liriodendron tulipifera*
Bur oak	*Quercus macrocarpa*	Coffee tree	*Gymnocladus dioica*

EVERGREENS FOR THE HOME

MR. A. HILL, of Dundee, Illinois.

(Read at Annual Convention, January, 1921.)

I want to apologize, I am not Mr. D. Hill, I am merely his son; it was impossible for father to come, and I just represent him.

It would seem almost like carrying coals to Newcastle for me to come to a state that was originally covered with evergreens to talk about evergreens, but as my subject is evergreens, every kind, I want to offer a word in behalf of the Forest Tree Association of the State of Wisconsin. If it is a good forest tree association, it needs your support; if it is not a good organization, it certainly needs your support. Perhaps few of you know of the part that your own despised Jack pine plays in the development