THE PLANTS OF WINNESHIEK COUNTY.

BY B. SHIMEK.

Winneshiek county presents a flora of unusual richness. Both because of its geographic position and its varied surface features it offers conditions which have made possible the development of a variety of plants scarcely equalled in any other county of the state. Its northerly position and its rough topography, especially along the Upper Iowa or Oneota river have brought a northerly flora, such as belongs to the heavily wooded regions of Minnesota and Wisconsin; its wooded knobs and ridges along the Turkey and the head waters of the Yellow rivers remind one of the rough wooded areas of southern Iowa; while the prairies are but a continuation of the greater prairies of the west. Each of these territories presents a variety of conditions. The roughest includes the driftless area and the drift border, with their deep gorges with narrow alluvial bottoms, their exposures of both sandstones and limestones, their shaded mossy banks and wooded slopes with not infrequent small bogs, and their drier wooded ridges with occasional treeless barren summits; the more southerly timbered ridges present somewhat similar conditions, but without the prominent rock-exposures, and with floral areas less sharply defined than those which characterize a region cut by deep gorges; and the treeless areas include both the rich level prairie and the prairie bogs of the Iowan drift, and the more rolling and drier prairie of the Kansan. The soils are derived chiefly from loess and drift (which are discussed elsewhere in this report), and therefore vary comparatively little in chemical composition. Occasionally coarser, sandy material appears on the ridges, but on the whole a finer soil prevails,
its fertility, however, varying with topography and plant-covering, and with the consequent possibility of retaining the humus-laden surface soil. Alluvial tracts are not, for the most part, of great extent in the county, being limited by the narrow valleys. In the rougher parts sandy and rocky tracts are frequent.

The investigations upon which this report is chiefly based were carried on largely during the spring, summer and fall of 1903. Every township in the county was visited, and certain typical localities were more thoroughly studied. Thus Moneek and Ft. Atkinson were selected for the study of the flora of the rougher territory of the two principal river systems in the southern part of the county; the vicinity of Calmar for the southerly prairie, and Orleans township and Bluffton for that in the western part of the county; for the rougher wooded region the entire gorge of the Oneota was traversed a number of times across the county, Decorah, Bluffton and Kendallville being the main centers of investigation, while the hilly country bordering Canoe creek and Bear creek received some attention; and the vicinity of Hesper, with its woods and prairies, and unique exposures of St. Peter sandstone proved the richest and most interesting single locality in the county.

The flora of this county had received some previous attention. Arthur's "Flora of Iowa" contains numerous references to plants from this county, which are based, at least in large part, on material furnished by Mrs. M. O. Oarter of Hesper, and Mr. E. W. D. Holway, formerly of Decorah; individual references are also made to Winneshiek county plants by a number of other authors who did not secure the material themselves, but received it from others—chiefly from Mrs. Carter, and Messrs. E. W. D. Holway, Herbert E. Goddard, Thos. E. Savage, Alois Kovarik, and E. Orr.

—Contributions to the Flora of Iowa, J. C. Arthur, 1876, with continuation, Nos. II VI in the Proceedings of the Davenport Academy of Natural Sciences, Vols. III and IV
—Such are the following:
 An Illustrated Flora, etc., Britton and Brown, 3 Vols., 1898-1899
 The Iowa Pteridophyta, B. Shimek. ibid., Vol. V, 1901
Aside from the resident students of botany, the most extensive collectors have been the following:

Mr. T. J. Fitzpatrick, who made a trip down the Upper Iowa in company with Dr. Paul Bartsch in the summer of 1895. He has published, in part jointly with Mrs. Fitzpatrick, a number of reports on the plants collected, including, however, a large number of plants obtained from other collectors.

Prof. Thos. E. Savage, who visited the county in the spring of 1899. A small part of his collection was noted in some of the references cited, but the greater part is here reported for the first time.

The present writer, who made a number of trips to the county in 1902 and 1903. His collections and those of Prof. Savage are now in the Herbarium of the State University. They include a large number of lower cryptogams, especially fungi, lichens and mosses, a report upon which cannot be here included. Two short reports treating of the plants of the county have been published by the writer, and in the present paper it is purposed to report upon all the plants obtained in the field, and also to include such as have been definitely reported from the county by others.

All the papers treating of Winneshiek county plants which have been heretofore published, have been little more than mere annotated lists. Very little attention has been paid to the economic value of the native plants, though this is often noteworthy, and the public has treated them rather as an undesirable encumbrance which must be removed as soon as possible to make way for the plants of the field and pasture. Aside from the use which we may make of individual plants or their products, the native flora has a vastly more important function whose influence extends far beyond the limits of any particular tract of land upon which it is developed, especially in a territory with a much broken surface such as is found in this county. It develops a better soil, conserves moisture, and prevents erosion and the

Manual of the Flowering Plants of Iowa, 1899.
consequent clogging of our streams with sand and mud. It is superior to any aggregation of cultivated or pasture plants for the reason that it is not removed to leave the soil bare during a large part of the year, as is the case with cultivated crops, and it is not eaten or trampled upon by cattle as in the case of pastures. Moreover, through long adjustment to existing conditions the native plants are perfectly adapted to the various surfaces upon which they occur, and they have become more plant under the varying moods of our uncertain climate. They are, therefore, more certain of persisting, and thus continuing their benificent influence. In a rough country the dangers from erosion and desiccation are great, not only to the land itself, but to the streams and water-courses. The steeper slopes should never be cleared of their covering of native vegetation, either by cultivation or by pasturing, for not only will they not be profitable, but they will be a menace to better lands and to valuable springs and streams.

But aside from these uses to which all our native plants lend themselves more or less readily, many of them more directly, and therefore more appreciably, affect the interests of man. Among the questions to which this usefulness of plants gives rise may be mentioned the problems of the forests, weeds, ornamental plants, medicinal plants, and consideration of rusts, smuts and other fungi which attack plants. The last subject has received much attention locally from Mr. Holway and will not be discussed here.

I. The Forest Problem.

Originally not less than one-fourth of the surface of Winneshiek county was covered with forest. This was sometimes scant, as upon the rocky slopes and drier hill-tops, or consisted of trees of but little value, as upon the narrow lower bottom lands. Here, as elsewhere, the forest was developed chiefly upon poorer soils. The sandy alluvial bottom lands, the rocky slopes, the gravelly or clayey hills—these formed the favorite habitat of trees. Even where a veneer of rich soil and leaf-mould appeared it was the effect rather than the cause of the forest. The forest prevented erosion; it retained moisture which made easier the disintegration of both organic and inorganic mater-
ials; it annually contributed its leaves to the accumulating soil; it harbored worms and other burrowing animals which brought fine soil-materials to the surface; and in its shelter the burden of dust-laden winds was deposited. So man thought that he saw alluring promise in the richness of the forest soil, and this coupled with the prospect of immediate gain from its products, led him to remove the forest. But an awakening has already come, and men realize that with the removal of the riches of the forest they also lose the richness of the soil, for the rains and melting snows quickly strip it from the hillsides. The land is then practically worthless, for it will make neither field nor pasture—it is fit only for growing trees, as it has grown trees in the past. Few counties in the state have suffered more than Winneshiek in this respect. The principal forest areas were in the roughest territory, unsuited to the ordinary purposes of agriculture. Man's greed and thoughtlessness combined in many cases to strip the best, if not all, of the forest from these hillsides, but this was not the gravest error, for if left to its own resources the forest would renew itself. But an attempt was made in many cases to cultivate or pasture the stripped areas, and this was done on the steepest slopes with uniformly disastrous results. More acres were cultivated that still other acres might be secured, under the pretext that the children of the land-holder must not be left without inheritance. The desire for immediate gain was, however, responsible for this, for men had not yet learned that a growing forest is one of the most splendid legacies which they may leave to their children. The best of the legacy which we ourselves received has been dissipated, in Winneshiek county as elsewhere, but conditions for the renewal of the forest are here very favorable. There are three distinct forest areas in the county, drained respectively by the Upper Iowa, the Turkey and the Yellow rivers. Of these the first is much the largest within the county, but all agree in having a relatively large amount of adjacent rough land, as has been noted. Much of this land is worthless, or at least of little value, for agricultural purposes, and it would entail but little present loss, and would vastly benefit posterity, if given over to the cultivation of timber. This would not require a large amount
of expensive nursery stock, nor great labor in the cultivation of
the soil, nor assiduous attention to the welfare of the trees. The
territory is so well adapted to the growth of trees that it is
necessary only to strew seed on the ground in suitable places,
and to keep out stock and fires, and the forest will take care of
itself. For this purpose seed should be gathered in considerable
quantity, preferably from nearby trees, and should not be per­
mitted to become too dry. Seed maturing in spring or early
summer may be scattered at once if the land is not devoid of
other vegetation, or it may be covered with a thin layer of sand
or soil in a shady place and left until fall. Seeds and fruits
which mature in autumn should be scattered just before the
leaves begin to fall. They will thus be better protected both
against the severity of winter, and against squirrels and chip­
munks. Less than one-half the seed sown in this manner will
germinate, and for that reason it should be scattered liberally.
With a little care it may be secured in abundance from native
or acclimated trees, practically without expense, in connection
with a pleasant summer or autumn outing. If a little trouble is
taken each year to re-seed where the stand is thin, to remove
rotting wood in order that it may not spread its infection by
scattering countless spores of fungi, to trim out excessive under­
brush, and to protect the trees against domestic animals and
fires, the forest will be a vast improvement upon those which
the first settlers found.

Native trees will be found most satisfactory for reforestation,
for as yet no introduced forest tree has demonstrated its
superiority over the native species. Moreover, in a county as
well timbered as this both quantity and variety may be secured
with comparative ease. In order that some conception of the
range of choice may be given, a list of the native trees and
shrubs is here presented, the species being grouped according
to habitat. In selecting trees for any tract it is well that heed be
given to the character of its surface in order that an appropriate
choice may be made from species occupying similar stations
elsewhere.

The following list contains the native trees and shrubs of the
county. Their distribution, abundance, full scientific names,
etc., may be determined from the systematic list which makes up the closing part of this paper.

TREES AND SHRUBS.

1. **Species belonging to bogs and wet places.**—The species are shrubs, the last two, only, becoming small trees. They are: the meadow-sweet (*Spiraea*), red-osier dogwood (*Cornus stolonifera*), button-bush (*Cephalanthus*), shiny willow (*Salix lucida*) and pussy willow (*S. discolor*).

2. **Species of the low alluvial bottoms.**—The shrubs are: the false indigo (*Amorpha fruticosa*), sandbar willow (*Salix interior*) and heart-leaved willow (*S. cordata*), the willows sometimes becoming small trees. The soft maple (*Acer saccharinum*), red birch (*Betula nigra*), almond-leaved willow (*Salix amygdaloides*) and black willow (*S. nigra*) are trees.

3. **Species of higher rich alluvial bottoms.**—The wild grape (*Vitis vulpina*) and poison ivy (*Rhus radicans*) are woody vines, the latter sometimes a low shrub; the elder (*Sambucus canadensis*), flowering currant (*Ribes floridum*) and the wahoo (*Euonymus*) are shrubs, the last sometimes a small tree; all the species of haws (*Crataegus*) and the sheep-berry (*Viburnum lentago*) are small trees, the latter sometimes a shrub; and the following species are trees: the box-elder (*Acer negundo*), hackberry (*Celtis*), the ashes (*Fraxinus, except F. pennsylvanica*), honey locust (*Gleditsia*), the butternut and walnut (*Juglans*), cottonwood (*Populus deltoides*) and white elm (*Ulmus americana*).

4. **Species of upland thickets.**—The Missouri gooseberry (*Ribes missouriensis*) and the hazel (*Corylus americanus*) are shrubs, and the haws (*Crataegus*) and wild crab (*Malus*) are small trees.

5. **Species of wooded rocky banks and open slopes.**—The following are woody vines: the purple virgin’s-bower (*Atragene*), climbing bittersweet (*Celastrus*) and the two honeysuckles (*Lonicera*). The shrubs are: the American yew (*Taxus*), shad-bush (*Amelanchier botryapinn*), the dogwoods (*Cornus alternifolia, amomum, asperifolia* and *circinata*), shrubby cinquefoil (*Dasiphora*), dwarf cherry (*Prunus pumila*), leather-wood (*Dirca*), prairie nine-bark (*Opulaster*), wild gooseberry (*Ribes*).
cynosbati), the wild roses (Rosa blanda and humilis), wild black raspberry (Rubus occidentalis), dewberry (Rubus procumbens), wild red raspberry (R. strigosus) red-berried elder (Sambucus pubens), bladder-nut (Staphylea), high bush-cranberry (Viburnum opulus) and arrow wood (Viburnum dentatum). The following species are often shrubs, but also become small trees: hoary alder (Alnus), alder-leaved June-berry (Amelanchier alnifolia), round leaved June-berry (A. rotundifolia), panicled dogwood (Cornus candidissima), choke cherry (Prunus virginiana), staghorn sumach (Rhus hirta), prickly ash (Xanthoxylum) and black haw (Viburnum lentago). The June-berry (Amelanchier canadensis) and blue beech (Carpinus) are small trees. The following species are forest trees: the balsam (Abies), red cedar (Juniperus virginiana), white pine (Pinus), hard maple (Acer saccharum), cherry birch (Betula lenta), canoe birch (Betula papyrifera), red ash (Praxinus pensylvanica), balm of Gilead (Populus candicans), American aspen (Populus tremuloides) and rock elm (Ulmus racemosa).

6. Species of upland, mostly rather open woods.—The iron wood (Ostrya) is a small tree, and the following are forest trees: the hickories (Hicoria), large-toothed aspen (Populus grandidentata), all the oaks (Quercus), the white oak (Q. alba) preferring deep woods, and red elm (Ulmus fulva).

7. Species of deep upland woods.—The hispid greenbrier (Smilax hispida) and the Virginia creeper (Parthenocissus) are woody vines; the following are trees: red oak (Quercus rubra), white oak (Q. alba), black cherry (Prunus serotina) and basswood (Tilia). All the species of the preceding group may also be found in deeper woods.

8. Species of prairie and forest borders.—Most of the species of this group are shrubs, as follows: juniper (Juniperus communis), lead plant (Amorpha canescens), New Jersey tea (Ceanothus americana), red root (Ceanothus ovatus pubescens), bush honeysuckle (Diervilla), prairie rose (Rosa arkansana), wild rose (R. humilis), prairie willow (Salix humilis), and wolf-berry (Symphoricarpos occidentalis). The blackberry (Rubus nigrobaccus) is also found along borders, but extends to deep woods, and the smooth sumach (Rhus glabra) is found along borders, in open woods, on dry slopes, etc. But one small
tree, the wild red cherry (*Prunus pennsylvanica*), properly belongs to this group.

In addition to the foregoing species, which are native, the red currant (*Ribes rubrum*) and the black locust (*Robinia pseudacacia*) may be found in waste places or openings, having escaped from cultivation. The red currant appears to be native.

Not all the species here listed are of like value, nor are all usable for the same purposes. The most useful **lumber trees** are the ashes, butternut and walnut, red and rock elms, cherry birch, black cherry, the hickories, the oaks, red cedar and white pine. For **ties and posts** the white oak, bur oak, honey locust and black locust are most servicable. The most valuable native **shade trees** are the hard maple, hackberry, ashes, American elm, basswood, canoe birch and white pine. The most useful species for **windbreaks** and **shelter belts** are the soft maple, ashes, boxelder, cottonwood, balm of Gilead and red cedar. All of these are used more or less for fuel.

Among the native **ornamental trees** and **shrubs** the hard maple, Virginia creeper and the sumachs are remarkable for the splendor of their autumn foliage; the bittersweet for its bright fruit; the June-berry, crab-apple, hawthorns and black locust for their flowers; the false indigo, honeysuckles, wild roses, elderberries, atragene, bladdernut, dogwoods, black haw, sheep-berry, New Jersey tea and nine-bark for flowers and foliage; and the white pine, balsam fir, shining willow and red-osier dogwood for the beauty of the foliage and crown.

As already noted these native species are eminently suitable for all purposes for which trees and shrubs are used, but nevertheless, numerous species have been introduced in cultivation for ornamental purposes. Among the introduced conifers are the Scotch and Austrian pines, Norway spruce, European larch, arbor-vitae and hemlock, and among the deciduous trees the silver poplar, Lombardy poplar, buckeye, catalpa, mountain ash and white willow. In this connection a report on a tree-census of a portion of the city of Decorah, including several blocks and streets in the residence part, may be of interest. The number
to the right in each case indicates the number of trees found within the territory selected:

<table>
<thead>
<tr>
<th>Tree Type</th>
<th>Number</th>
</tr>
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<tbody>
<tr>
<td>Hard maple</td>
<td>97</td>
</tr>
<tr>
<td>Soft maple</td>
<td>86</td>
</tr>
<tr>
<td>Box elder</td>
<td>62</td>
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<td>American elm</td>
<td>62</td>
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<tr>
<td>Cottonwood</td>
<td>51</td>
</tr>
<tr>
<td>White pine</td>
<td>45</td>
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<tr>
<td>Norway spruce</td>
<td>36</td>
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<tr>
<td>Bur oak (native)</td>
<td>20</td>
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<tr>
<td>Mountain ash</td>
<td>15</td>
</tr>
<tr>
<td>White cedar</td>
<td>14</td>
</tr>
<tr>
<td>Hackberry</td>
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<tr>
<td>Red cedar</td>
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<td>Balsam fir</td>
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</tr>
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<tr>
<td>Red elm</td>
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</tr>
<tr>
<td>Catalpa</td>
<td>3</td>
</tr>
<tr>
<td>Black locust</td>
<td>3</td>
</tr>
<tr>
<td>European larch</td>
<td>2</td>
</tr>
<tr>
<td>Scotch Pine</td>
<td>2</td>
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<tr>
<td>Buckeye</td>
<td>2</td>
</tr>
<tr>
<td>Choke cherry</td>
<td>1</td>
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</tbody>
</table>

Also several specimens of silver and Lombardy poplars and Austrian pine.

It is interesting to note that notwithstanding the abundance of splendid available native species, such forms as the soft maple, box elder, cottonwood, silver poplar and Lombardy poplar are commonly planted. Indeed in some cases fine native species were first removed, and these less desirable kinds were set out.

II. Ornamental Plants.

In addition to the ornamental trees and shrubs already discussed, there are numerous native herbaceous plants which are well worthy of cultivation. While not many of them lend themselves readily to use in formal flower-beds, all may be used to advantage in various nooks and corners, to hide unsightly places, such as bogs and sand ridges, to replace weeds along garden fences, and to be mingled in fern-beds, either on the north side of the house, or in well-shaded rock-ferneries.

Perhaps the most adaptable of these species are the columbine, common blue violet, wild phlox, Jacob’s ladder (blue-bell), shooting star (*Dodecatheon*) and lungwort (*Mertensia*) but even these will do better in their natural habitats. For convenience the native ornamental herbs are here grouped under their respective habitats, which suggest the kind of places in which they should be cultivated.

1. **Water.**—For artificial or natural ponds the most suitable species are the yellow pond lily (*Castalia*) and the white water crow-foot (*Batrachium*).
2. *Shaded bogs.*—The fringed gentian and greater lobelia are well adapted to seepy banks.

3. *Open bogs and wet meadows.*—For larger bogs the cattail and *Iris* are satisfactory, while for smaller boggy places the oak-leaved fern (*Onoclea*), shield-fern (*Nephrodium thelypteris*), Canada lily, the fringed orchis (*Blephariglottis*) and marsh marigold (*Caltha*) are very desirable.

4. *Open prairie, etc.*—The following more or less showy species are adapted to open places: red lily (*Vagnera stellata*), pasque-flower (*Pulsatilla*), shooting star (*Dodecatheon*), downy gentian (*G. puberula*), prairie phlox, horse mint (*Monarda*), both blazing stars (*Lacinaria*), prairie violet (*Viola pedatifida*), foxglove beard-tongue (*Pentstemon*), bushy goldenrod (*Euthamia*), the wild asters (*A. novae-angliae, laevis* and *exiguus*) and the two prairie clovers (*Kuhniastera*). On dry ridges the early buttercup (*Ranunculus fascicularis*) will be attractive because of its early flowering. In open sandy places the corydalis (*Capnoides*), blue-eyed grass (*Sisyrinchium*) and bird-foot violet (*Viola pedata*) will do well.

5. *Moderate shade.*—This naturally grades into both the preceding and the following groups, and therefore is not sharply defined. Its most satisfactory plants are the following: the ostrich fern (*Struthiopteris*), smooth Solomon's seal (*Salomonia*), starry campion (*Silene*), hepatica, rue-anemone (*Syndesmon*), white virgin's bower (*Clematis*), hydrangea, common blue violet (*Viola papilionacea*), spiked willow-herb (*Chamaenerion*), wild phlox (*P. divaricata*), lungwort (*Mertensia*), the goldenrods (*Solidago speciosa* and *serotina*) and *Aster shortii*.

6. *Deep shade.*—Plants of this group are best cultivated in places suited to our ordinary ferns. Our flora includes the following: the lady fern (*Athyrium*), the shield ferns (*Nephrodium*), bladder fern (*Cystopteris fragilis*), maidenhair fern (*Adiantum*), flowering fern (*Osmunda*), moonwort (*Botrychium*), bellwort (*Uvularia*), dogtooth violet (*Erythronium*), false Solomon's seal (*Vagnera racemosa*), the larger species of *Trillium*, the ladies'-slippers (*Cypripedium*), spring beauty (*Claytonia*), false rue-anemone (*Isopyrum*), crane's-bill (*Geranium*), yellow violet (*Viola pubescens*), the gentians (*G.*
andrewsii and flavida), Jacob's ladder (Polemonium), may apple (Podophyllum), white snake-root (Eupatorium aegeratoides) and a goldenrod (Solidago ulmifolia).

7. Shaded rocky banks.—Most of the species in the preceding group may be included here, with the following additional species: the early wake-robin (Trillium nivale), nodding wild onion (Allium cernuum), both species of Bicuculla, American vetch (Vicia), blood-root (Sanguinaria), water-leaf (Hydrophyllum virginicum) and the heart-leaved aster (A. cordifolius). The species of the following group may also be planted with the foregoing.

8. Rocky fernery.—Well shaded heaps or ledges of limestone, with scant soil intermingled, will produce very pleasing effects. While many of the plants of the two preceding groups may be used in such places, the following are especially suitable: the bulb-bearing fern (Cystopteris bulbifera), bishop's cap (Mitella) and wild columbine (Aguilegia).

As all the plants here listed as suitable for cultivation are perennial, with persisting roots or underground stems, it is possible to transplant them from their native habitats. This should be done early in the spring before growth has advanced, or after the plant has matured its fruit. Seed should also be collected, and sowed freely in suitable places. This may be done immediately upon the maturing of the seed, or the seed may be kept until spring. Where the fruit (or seed) is dry it may simply be kept in a box or paper in a moderately dry cool place. Where the fruit is pulpy it may be set in a cool cellar in a small box of sand, which must be kept barely moist, and in the spring sand and seed may be scattered. However, in most of these cases it will require at least two years to mature the plant. Usually a combination of the two methods, transplanting and seeding, will give the best results. In the case of all plants which require shade, leaf-mould should be liberally supplied, and in all cases some attention must be given to weeds, as they will otherwise over-run the wild-flower bed. Blue grass is perhaps the most dangerous of these weeds, and is fatal to practically all wild flowers.
Forage Plants.

None of the native or naturalized forage plants take rank with red clover, timothy and blue grass, which are cultivated for this special purpose. Nevertheless there are among them many species which contribute liberally to the forage supply of the county. Indeed during dry seasons all species which are not protected by harsh structures, such as spines, etc., or by poisonous, or at least disagreeable, products with repelling taste and odor, are eaten more or less by cattle. Formerly the native herbs, especially grasses, which covered the prairies, formed valuable pasture and hay, but so little of the original prairie remains that most of these species have disappeared, or are found only sparingly. With the exception of the clovers the best forage plants are grasses. The most valuable species of prairie and meadow were Cinna, Calamagrostis and the two species of Andropogon. Of less value are Bromus ciliatus and kalmii, and Agropyron tenerum and occidentale, while coarser, harsher grasses like Muhlenbergia mexicana and glomerata, Spartina and Leersia have little beyond bulk to recommend them. Among introduced plants, in addition to the ubiquitous blue grass and timothy, Agrostis alba, Dactylis and Setaria glauca have some fodder value, the last chiefly in stubble fields.

Weeds.

All plants which have sufficient persistence and adaptability to become weeds are of public interest. Among the plants of Winneshiek county there are not only many introduced weeds, but some of the native plants have so far changed their habits that they, too, have become pernicious weeds. Among the most vicious of the former, both because of abundance and persistence, are the following: black bind-weed (Polygonum convolvulus), curly dock (Rumex crispus), the species of Amaranthus, plantain (Plantago major), both species of Brassica, shepherd’s purse (Bursa), both sweet clovers (Melilotus), round-leaved mallow (Malva rotundifolia), wild parsnip (Pastinaca), ground ivy (Glecoma), chickweed (Alsine media), purslane (Portulaca), the thornapples (Datura), dandelion (Taraxacum), prickly lettuce (Lactuca scariola), dog-fennel (Anthemis), burdock (Arctium), field-thistle (Carduus lanceolatus), Canada thistle (C. arvensis) and the panic grasses (Panicum crus-galli
Blue grass (Poa pratensis) is often a persistent weed. The less pernicious, or less abundant, introduced weeds are: the panic grasses (Panicum sanguinale, capillare and dichotomum), the fox-tail grasses (Setaria glauca and viridis), Eragrostis major, both kinds of chess (Bromus secalinus and racemosus commutatus), orchard grass (Dactylis), St. John’s-wort (Hypericum perforatum), lamb’s quarters (Chenopodium album), hedge mustard (Sisymbrium officinale), false flax (Camelina), low hop clover (Trifolium procumbens), sheep-sorrel (Rumex acetosella), patience dock (R. patientia), Russian thistle (Salsola), mullein (Verbascum), speedwell (Veronica peregrina), hemp (Cannabis), black nightshade (Solanum nigrum), ground cherry (Physalis pubescens), motherwort (Leonurus), chicory (Cichorium), tansy (Tanacetum) and sow-thistle (Sonchus).

The following native weeds are more or less troublesome: squirrel-tail grass ( Hordeum ), wire grass ( Juncus tenuis ), water dock (Rumex brittanica), smart-weed (Polygonum pensylvanicum), pepper-grass (Lepidium virginicum), partridge-pea (Cassia chamaecrista), white clover (Trifolium repens), three-seeded mercury (Acalypha), the native spurge (Euphorbia), velvet-leaf (Abutilon), yellow oxalis (Oxalis stricta), evening primrose (Onagra biennis), milkweed (Asclepias syriaca), the dodders (Cuscuta), nyctelea (Macrocalyx), beggar’s lice (Lappula), the verbenas (Verbena) both species of Scrophularia, Rugel’s plantain (Plantago rugelii), slender nettle (Urtica gracilis), bur-weed marsh-elder (Iva), both ragweeds (Artemisia trifida and artemisaeafolia), cocklebur (Xanthium), horse-weed (Leptilon), daisy flea-bane (Erigeron strigosus), tall cone-flower (Rudbeckia laciniata), several species of sunflowers (Helianthus annuus, grosse-serratus, rigidus, etc.), Spanish needles (Bidens) and fire weed (Erechtites). Muhlenbergia mexicana sometimes becomes a weed, and the sand-bur (Cenchrus) is often troublesome in sandy fields. For additional notes on all these species see the annotated list.

Individual effort avails but little in the conflict with weeds. Until concerted systematic and intelligent action is taken against them men will continue to suffer great loss from this source. Fire, the plow, and the scythe or mower are the most
V. Medicinal Plants.

This is by no means the least interesting part of the flora. The products of more than forty native species are recognized as official by the U. S. Pharmacopœia. In addition to these, many species are used as substitutes, or as home remedies. Some of the official species are not found in sufficient quantity to be of commercial value, but their occurrence in the county is of interest. Various parts of plants contribute the official product, and the best season of the year for collecting the materials will vary with the part used. It may be stated as a general rule that rhizomes and roots should be collected in late summer or early autumn; the bark of Ulmus in early spring, and other barks (of both root and stem) in spring or autumn; the herbs and leaves are usually best just before flowering has commenced; the flowering tops when the first flowers are about to fruit; the flowers just after opening; and the fruits when mature. The distribution in the county, and the habits of the species discussed in this connection are given in the annotated list. The species are here grouped according to the part of the plant yielding the official drug, the official name preceding the name of the plant, which is given in parenthesis.

1. The herb (leaves and young stems).—Oil of Erigeron (Leptiton canadense), Pulsatilla (Pulsatilla hirsutissima) and Scutellaria (Scutellaria lateriflora).

2. Flowering tops.—Eupatorium (Eupatorium perfoliatum), Hedeoma (Hedeoma pulegoideis) and Lobelia (Lobelia inflata).

3. Leaves.—Chimaphila (Chimaphila umbellata), and Rhus Toxicodendron (Rhus radicans), the latter fresh.

4. Flowers.—Sambucus (Sambucus canadensis).

5. Fruit.—Rhus Glabra (Rhus glabra), Humulus (Humulus lupulus), Oil of Juniper (Juniperus communis) and Raspberry (Rubus occidentalis and strigosus).


7. Bark of stem.—Hamamelis Bark (Hamamelis virginiana), Canada Balsam (from Abies balsamea), Oil of Betula
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(from Betula lenta), Salicin (from all the species of Populus and the larger species of Salix), Ulmus (Ulmus fulva), Viburnum (Viburnum opulus), Viburnum Prunifolium (Viburnum prunifolium), Quercus (Quercus alba), Prunus Virginiana (Prunus serotina and virginiana), and Xanthoxylum (Xanthoxylum americanum).

8. Bark of root.—Euonymus (Euonymus atropurpureus), Juglans (Juglans cinerea) and Rubus (Rubus nigrobaccus and procumbens).

9. Root.—Apocynum (Apocynum cannabinum), Asclepias (Asclepias tuberosa) and Senega (Polygala senega).

10. Rhizome (rootstock).—Calamus (Acorus calamus), Caulophyllum (Caulophyllum thalictroides), Cypripedium (Cypripedium hirsutum and parviflorum), Geranium (Geranium maculatum), Hydrastis (Hydrastis canadensis), Iris (Iris versicolor), Leptandra (Leptandra virginica), Menispermum (Menispermum canadense), Podophyllum (Podophyllum peltatum) and Sanguinaria (Sanguinaria canadensis).

The common names of all the medicinal plants are given in the annotated list.

VI. Systematic Annotated List of Plants.

In the following list no attempt is made to define species, as this is not necessary in view of the number of available descriptive manuals. Brief notes upon distribution, habits and abundance are given under each species, and locality names are given where specimens were preserved, or where a report was published. In case the record is not based on the writer’s own material the name of the collector or recorder follows in parenthesis. Messrs. Savage and Goddard did not publish lists, but the writer examined their material. In all other cases the published record is accepted. The scientific nomenclature for the following plants is in the main that of Britton’s Manual,* for ferns that of the writer’s paper on Iowa Pteridophyta, † and for grasses that of Pammel’s “Grasses of Iowa.”‡ These may not in all cases be entirely satisfactory, but they are available to Iowa workers, and, moreover, the question of exact

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nomenclature is of no great importance in a mere geographical list. Gray’s Manual is still widely used in this state, and the earlier plant lists published by the Survey were based on it. For that reason, in cases in which the name here adopted differs from that of the Manual, the latter follows in parenthesis.

**SUBKINGDOM PTERIDOPHYTA, FERNS, ETC.**

*Family 1. Equisetaceae. Scouring Rushes.*

*Equisetum arvense* L. Field Horsetail. Quite common in sandy and clay grounds. Decorah (Goddard), Hesper.

*Equisetum robustum* A. Braun. Great Scouring-rush. Common on moist banks, etc. Decorah.

*Equisetum laevigatum* A. Br. Prairie Scouring-rush. Quite common. Decorah (Goddard).


*Family 2. Ophioglossaceae.*


*Family 3. Filicaeae.*


*Polypodium vulgare* L. Polypody. Rather rare, on moss-covered ledges along Canoe creek.

*Woodia ilvensis* (L.) A. Br. Rare, in crevices of St. Peter sandstone near Hesper.


*Struthiopteris struthiopteris* (L.) (Onoclea strythiopteris Hoffm.) Ostrich fern. Locally abundant on alluvial grounds. Along Bear and Canoe creeks.


*Phegopteris robertiana* (Hoffm.) Fee. (P. calarea Fee.) Beech Fern. Rather rare, on shaded rocky banks. Decorah (Goddard).

Nephrodium goldieanum (Hk.) Hk. & Gr. (Aspidium goldieanum Hk.) Goldie’s Fern. Not common, in rich woods. Decorah (Goddard).


Camptosorus rhizophyllus (L.) Link. Walking Fern. Not common, on mossy ledges. Decorah (Savage); Canoe creek.


Cryptogramma stelleri (Gmel.) Prantl. (Pellaea gracilis Hook.) Smaller Cliff-brake. Locally common on shaded limestone ledges. Highlandville; Decorah (Savage).

Cheilanthes feei Moore. (C. lanuginosa Nutt.) Lip-fern. Not common, on exposed rocks. Decorah (Calvin).

Adiantum pedatum L. Maidenhair Fern. Common in deep woods. Decorah (Goddard), Hesper.


Family 5. Selaginellaceae.


SUBKINGDOM SPERMATOPHYTA. FLOWERING PLANTS.
Class 1. Gymnospermae, Conifera.

Family 1. Pinaceae.

Pinus strobus L. White Pine. Locally frequent in upland woods especially above rocky ledges, along the Upper Iowa Upper Iowa river. Most abundant near Kendallville and along Pine, Bear and Canoe creeks. Groves of white pine occur in Fremont township.
**Abies balsamea** (L.) Mill. Balsam Fir. Not rare, along rocky slopes and above ledges along the upper course of the Upper Iowa river. Most abundant near Kendallville and Bluffton.

**Juniperus communis** L. Juniper. Locally common on dry rocky hilltops. Kendallville, Bluffton, Canoe creek, both forks of Bear creek.

**Juniperus virginiana** L. Red Cedar. Common on dry hillsides and rocky slopes. Kendallville, Bluffton, Decorah, Canoe creek, both forks of Bear creek, Hesper.

*Family 2. Taxaceae.*


**Class II. Angiospermae.**

**SUB-CLASS I. MONOCOTYLEDONES.**

**Order I. Graminales.**


**Andropogon provincialis** Lam. (*A. furcatus* Muhl.) Blue-stem. Still common where the native prairie flora is not wholly destroyed. Ft. Atkinson.


**Panicum sanguinale** L. Finger Grass.Introduced weed, in cultivated places. Near Hesper, etc.


**Panicum dichotomum** L. Reported by Fitzpatrick.

**Panicum unciphyllum** Trin. Finger Grass. In dry places. Decorah (Goddard).


Muhlenbergia mexicana (L.) Trin. Mexican Dropseed. Sometimes a weed. The variety filiforme Muhl. was collected at Decorah.


Phleum pratense L. Timothy. Very generally escaped from cultivation. Calmar, etc.

Alopecurus geniculatus L. Marsh Fox-tail. In wet places, locally common. Calmar.


Cinna arundinacea L. Indian Reed-grass. In woods, not rare. Hesper.

Agrostis alba L. Red-top. In low grounds. Pammel (l.c.) marks this as occurring in Winneshiek county in the map on p. 166, but mentions no locality in this county in the text.


Koeleria cristata (L.) Pers. Koeleria. On dry sandy ridges, etc. Calmar; Decorah (Goddard).


Eragrostis major Host. Candy Grass. A common introduced weed, in waste and cultivated places. Decorah, etc.


Dactylis glomerata L. Orchard Grass. Introduced, and common in shaded places. Hesper.

Poa pratensis L. Kentucky Blue Grass. Introduced, and now crowding out most of the common grasses, even in deep woods. Hesper, etc.

Glyceria nervata (Willd.) Trin. Nerved Manna Grass, in wet grounds along creeks, etc. Hesper.

Glyceria americana (Torr.) Pam. (G. grandis Wats.) Reed Meadow Grass. In moist places. Hesper (Arthur).


Hordeum jubatum L. Squirrel-tail Grass. Very common in pastures, waste places, etc. Calmar, etc.


Family 2. Cyperaceae. Sedges.*


Cyperus filiculmis Vahl. Slender Cyperus. Frequent on dry open ridges, etc. Decorah (Goddard); Hesper.


*Most of the specimens here listed were examined by Mr. R. I. Cratty.
Scirpus americanus Pers. (S. pungens Vahl.) Chairmaker’s Rush. In water, etc. Decorah (Savage).


Carex stricta Lam. Tussock Sedge. In swamps. Decorah (Goddard).


Carex amphibola Steud. (C. grisea var. (?) rigida Bailey.) Narrow-leaved Sedge. In dry soil. Decorah (Goddard).


Carex stipata Muhl. Awl-pointed Sedge. Reported by Fitzpatrick.

Carex gravida Bailey. Heavy Sedge. In moist places. Decorah (Goddard). This is the form which Cratty reports as var. laxiflora Bailey.


Carex rosea Schk. Stellate Sedge. In woods. Decorah (Goddard).


Carex tenera Dewey. (C. straminea var. aperta Boott.) Marsh Straw-sedge. Reported by Fitzpatrick.

Carex festucacea Wild. (C. straminea var. brevior Dewey.) Fescue Sedge. Decorah (Goddard).

Order 2. Pandanales
Family 1. Typhaceae.


Family 2. Sparganiaceae.


Family 1. Naiadaceae.


Potamogeton lonchites Tuck. (P. fluitans Roth.) Long-leaved Pondweed. Upper Iowa river (Fitzpatrick).

Family 2. Alismaceae.


Sagittaria rigida Pursh. (S. heterophylla Pursh.) Sessile-fruited Arrowhead. Reported by Fitzpatrick.

Family 3. Vallisneriaceae.


Vallisneria spiralis L. Eel-grass. In the Upper Iowa river. Bluffton (Cratty).

Order 4. Arales.

Arisaema triphyllum (L.) Torr. Indian Turnip. Common in rich woods. Decorah (Savage, Cratty); Calmar.

Spathyema foetida. (L.) Raf. (Symplocarpus foetidus Salisb.) Skunk Cabbage. Common in shaded bogs. Decorah (Cratty), Bluffton, etc.

Acorus calamus L. Calamus. Locally common in swamps and bogs. Decorah (Cratty), Hesper, said to be introduced.

Family 2. Lemnaceae. Duckweeds.


Order 5. Xyridales.

Family 1. Commelinaceae.


Uvularia sessilifolia L. (Oakesia sessilifolia Wats.) Sessile-leaved Bell-wort. Reported by Fitzpatrick.

Family 3. Liliaceae. Lilies.

Allium tricoccum Ait. Wild Leek. Locally common in rich woods. Hesper.


Lilium umbellatum Pursh. (L. philadelphicum L., in part.) Western Red Lily. Formerly very abundant, but now restricted by cultivation of prairies. On dry prairie. Hesper.

Lilium canadense L. Wild Yellow Lily. Locally common in prairie bogs and meadows. Calmar.

Erythronium americanum Ker. Yellow Adder’s Tongue. In rich woods. Hesper (Arthur).

Erythronium albidum Nutt. White Dog-tooth Violet. Reported by Fitzpatrick.

Family 4. Convallariaceae.


Vagnera stellata (L.) Morong. (Smilacina stellata Desf.) Smaller False Solomon’s Seal. Common on moist prairie, etc. Calmar.

Unifolium canadense (Desf.) Greene. Maianthemum canadense Desf.) False Lily-of-the-Valley. Rather common in rich woods. Decorah (Savage), Hesper.


Trillium nivale Rid. Early Wake-robin. Not rare, on shaded banks and slopes. Decorah (Savage), Bluffton.


Smilax herbacea L. Carrion-flower. Common in thickets, etc. Decorah (Savage), Calmar.

Smilax ecirrhata (Engelm.) S. Wats. Upright Smilax. Reported by Fitzpatrick.

Class II. Angiospermae.

Family 6. Amaryllidaceae.

Hypoxis hirsuta (L.) Cov. (H. erecta L.) Star-grass. In open woods, etc. Common. Decorah (Savage).

Family 7. Dioscoreaceae.

Dioscorea villosa L. Wild Yam-root. Reported by Fitzpatrick.

Family 8. Iridaceae.

Iris versicolor L. Blue Flag. Locally common in marshes and wet meadows. (Fitzpatrick).


Order 7. Orchidales.


Cypripedium hirsutum Mill. (C. pubescens Willd.) Large Yellow Lady’s Slipper. Rather common, in deep woods. Canoe creek, Decorah, Hesper.

Cypripedium parviflorum Salisb. Small Yellow Lady’s Slipper. With the preceding, but less common. Scarcely a distinct species. Hesper.


Coeloglossum bracteatum (Willd.) Parl. (Habenaria bracteata R. Br.) Long-bracted Orchis. Reported by Fitzpatrick.

Limnocharis hyperborea (L.) Rydb. (Habenaria hyperborea R. Br.) Leafy Green Orchis. Rare, in deep upland woods. Hesper (Arthur).

Lysias hookeriana (A. Gray) Rydb. (Habenaria hookeri Torr.) Hooker’s Orchis. Locally common in deep upland woods. Hesper, Canoe creek.

Gyrostachys gracilis (Bigel.) Kuntze. (Spiranthes gracilis Bigel.) Slender Ladies' Tresses. Decorah (Arthur).


SUB-CLASS II. DICOTYLEDONES.

Series I.
Order 1. Salicales.
Family Salicaceae. Poplars; Willows.


Populus candicans Ait. (P. balsamifera var. candicans Gray.) Balm of Gilead. Seemingly native on banks and slopes along the Upper Iowa. Kendallville, Calmar (cultivated).

Populus deltoides Marsh. (P. monilifera Ait.) Cottonwood. Common along streams. Decorah (Savage), Calmar. Also observed at Ft. Atkinson, Kendallville, Bluffton, etc.

Populus grandidentata Michx. Large-toothed Aspen. In upland woods. Not common. Decorah (Savage), Hesper, north fork of Bear creek. Also observed at Moneek. Kendallville, Canoe creek, and south fork of Bear creek.

Populus tremuloides Michx. American Aspen. Very common in thickets, upland woods, etc. Decorah. Observed at all the other localities in the county.

SUB-CLASS II. DICOTYLEDONES.


Salix lucida Muhl. Shining Willow. Locally common in wet grounds. Ft. Atkinson, Freeport (some are small trees). Observed at Canoe creek and Bluffton.

Salix alba L. White Willow. Occasionally naturalized. Decorah (Savage).


Salix missouriensis Bebb. Missouri Willow. (Probably included with S. cordata by Gray.) In low grounds, not rare. Decorah, Hesper.


Salix discolor Muhl. Glaucous Willow, Pussy Willow. Common in bogs, etc. Decorah (Savage), Kendallville, Canoe creek, Hesper, etc.

Salix ericocephala Michx. Pussy Willow. (Included with the preceding by Gray.) Rather common, in low grounds. Decorah, Hesper. (The latter may be a hybrid, S. humilis + S. discolor.)


Order 2. Juglandales.
Family Juglandaceae.

Juglans nigra L. Black Walnut. In rich grounds. Decorah (Savage). Also observed at Hesper and Moneek.

Juglans cinerea L. Butternut. Rather common, on lower slopes, etc. Decorah. Also observed at all the other localities excepting Calmar.
**Hicoria minima** (Marsh.) Britt. *Carya amara* Nutt.) Bitternut. In rather rich soil, quite common. Decorah, Moneek. Also observed at Hesper, Canoe creek, both forks of Bear creek, Bluffton and Kendallville.

**Hicoria ovata** (Mill.) Britt. *Carya alba* Nutt.) Shell-bark Hickory. Rather abundant, in rich soil. Decorah. Also observed at Hesper, Canoe creek, both forks of Bear creek, Bluffton, Kendallville and Moneek.

**Order 3. Fagales.**

**Family 1. Betulaceae.**

*Carpinus caroliniana* Walt. Blue Beech. Quite common on moist banks, etc. Canoe creek, Hesper. Also observed at Kendallville, and both forks of Bear creek.


*Corylus rostrata* Ait. Beaked Hazel-nut. Very rare. Found only at Kendallville, in rich soil.

**Betula papyrifera** Marsh. Canoe Birch. Common on rocky slopes, etc. Hesper, Canoe creek, both forks of Bear creek, Kendallville, Bluffton, Decorah.


**Family 2. Fagaceae.**

**Quercus rubra** L. Red Oak. Quite common, chiefly in upland woods. Typical specimens were obtained at Decorah, Freeport, Hesper, Highlandville and Plymouth Rock. A variety with typical leaves, but narrow acorns with convex or almost obconical cups was found at Moneek and Hesper. It may be a distinct species.

**Quercus schneckii** Britt. Schneck's Red Oak. (Not in Gray. Sargent calls this *Q. texana* Buckl.) This and the two following species have been indiscriminately reported as *Q. coccinea* in Iowa. The writer has not been able to find true *Q. coccinea*
Muench. in the state. The inner bark of the three species here recognized is yellow, never red. Common in upland woods. Specimens from Canoe creek, Kendallville, Moneek and Decorah seem to be typical, while others from Hesper, Moneek, Freeport, Calmar and Ft. Atkinson approach *Q. velutina* in the character of the acorn. The series is interesting, and needs further study.

*Quercus borealis* Michx. (*Q. coccinea* var. *ambigua* Gray.) Gray Oak. Specimens which appear to be typical, and which agree exactly with Engelmann’s specimens labelled *Q. ambigua* in the herbarium of the St. Louis Botanical Garden, were collected at Hesper and Sattre, and observed throughout the northeastern part of the county in upland groves remote from streams, and frequently in the company of the preceding species. The leaves are like the moderately lobed, broad, typical leaves of *Q. rubra*, while the acorns resemble those of *Q. velutina*, but the scales of the cup are appressed. The bark is comparatively smooth, thin and very brittle, and the general aspect of the tree is different from that of any other Iowa oak. Sargent refers *Q. ambigua* (which is the same as this species) to *Q. rubra*, but judging from the specimens here reported this is certainly an error.

*Quercus velutina* Lam. (*Q. coccinea* var. *tinctoria* Gray.) Yellow Oak; Black Oak. This species is rather common in the southern part of the county. It was obtained at Decorah, and observed at Ft. Atkinson, etc. The species is replaced northward by the two preceding species.

*Quercus alba* L. White Oak. Common in upland groves and deep woods, especially near streams. Decorah (Savage), Bluffton, Highlandville. Also observed at Hesper, Canoe creek, both forks of Bear creek, Kendallville, Moneek and Ft. Atkinson. Our most valuable forest tree.

*Quercus macrocarpa* Michx. Bur Oak. Common in upland woods. Collected at Decorah and Calmar, and observed in all parts of the county where collections were made. This tree is very variable in the size and form of the leaves and acorns, according to habitat.
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Order 4. Urticales.
Family 1. Ulmaceae.


Family 3. Urticaceae.


Urticastrum divaricatum (L.) Kuntze. (Laportea canadensis Gaud.) Wood Nettle. In rich woods. Common. Hesper, etc.


Order 5. Santalales.
Family Santalaceae.

Comandra umbellata (L.) Nutt. Bastard Toadflax. Locally common on dry hills and prairies. Decorah (Savage).

Order 6. Aristolochiales.
Family Aristolochiaceae.


**SUB-CLASS II. DICOTYLEDONES.**

**Order V. Polygonales.**

*Family Polygonaceae.*


*Rumex altissimus* Wood. Tall Dock. Common in low places. Decorah (Savage), etc.


*Rumex brittanica* L. Great Water-dock. Common in wet places. Calmar, etc.


*Polygonum amphibium* L. Water Persicaria. Aquatic. Reported by Fitzpatrick.


*Polygonum persicaria* L. Lady’s Thumb. Introduced weed. Calmar, etc.


*Polygonum virginianum* L. Virginia Knotweed. Rather common in woods. Decorah (Goddard), Canoe creek.

*Polygonum aviculare* L. Doorweed. A common introduced door-yard weed. Calmar, Hesper, etc.

Polygonum tenue Michx. Slender Knotweed. Locally common in dry sandy soil. Decorah (Holway), the St. Peter sandstone region near Hesper.

Polygonum douglasii Greene. Douglas' Knotweed. (Not included in Gray.) With the preceding in the vicinity of Hesper, and even more abundant.

Polygonum convolvulus L. Black Bindweed. A common introduced weed. Calmar, Hesper, etc.

Polygonum scandens L. (P. dumetorum var. scandens Gray.) Climbing False Buckwheat. Reported by Fitzpatrick.

Polygonum sagittatum L. Arrow-leaved Tear-thumb. In low grounds. Reported by Fitzpatrick.

Order 8. Chenopodiales
Family 1. Chenopodiaceae.

Chenopodium album L. Lamb's Quarters. A common introduced weed. Reported by Fitzpatrick.


Salsola kali L. Salt-wort.

Family 2. Amaranthaceae.


Amaranthus blitoides S. Wats. Prostrate Pigweed. Introduced from the west. A common weed. Ft. Atkinson, etc.


Family 4. Asclepiadaceae.


Family 5. Portulacaceae.

Claytonia virginica L. Spring Beauty. In rich alluvial woods. (Fitzpatrick.)
SUB-CLASS II. DICOTYLEDONES.

Portulaca oleracea L. Purslane. A common introduced weed. Calmar, etc.

Family 6. Caryophyllaceae.

Agrostemma githago L. (Lychnis githago Scop.) Introduced weed. Reported by Fitzpatrick.


Silene alba Muhl. Western White Campion. In moist grounds, along borders of thickets. Not rare. Calmar, etc.


Saponaria officinalis L. Soapwort. Introduced. Locally common in waste places, etc. Ft. Atkinson.


Alsine media L. (Stellaria media Smith.) Common Chickweed. Common weed in waste places, etc. Introduced. Hesper, etc.

Alsine longifolia (Muhl.) Britt. (Stellaria longifolia Muhl.) Long-leaved Stitchwort. Common in wet meadows, etc. Decorah (Goddard).

Cerastium longipedunculatum Muhl. (C. nutans Raf.) Nodding Chickweed. Common in moist woods, etc. Decorah (Savage), Hesper, Ft. Atkinson.

Cerastium arvense L. Field Chickweed. Reported by Fitzpatrick.

Cerastium arvense oblongifolium (Torr.) Holl. & Britt. In rocky places. This variety was founded on Winneshiek county material.* Decorah (Holway).

Moehringia lateriflora (L.) Fenzl. (Arenaria lateriflora L.) In moist, shaded places. Decorah (Savage).

Order 9. Ranales

Family 1. Nymphaeaceae.


Family 2. Ranunculaceae.

_Hydrastis canadensis_ L. Orange-root Golden Seal. Rare, in deep woods. Canoe creek.


_Isopyrum biternatum_ (Raf.) T. & G. False Rue-anemone. In rich alluvial woods. Decorah (Savage).


_Aquilegia canadensis_ L. Wild Columbine. Common on shaded rocks. Decorah (Savage), Calmar.


_Anemone virginiana_ L. Tall Anemone. Common in open woods. Calmar, etc.


_Syndesmon thalictroides_ (L.) Hoffm. (_Anemonella thalictroides_ Spach.) Rue-anemone. In open woods. (Fitzpatrick).

Clematis virginiana L. Virgin’s Bower. Common along borders of thickets, etc. Ft. Atkinson, Decorah, Hesper.

Atragene americana Sims. (Clematis verticillaris DC.) Purple Virgin’s Bower. Shaded rocky banks. Found at Decorah by Holway and Goddard.


Ranunculus abortivus L. Kidney-leaved Crowfoot. In moist shaded ground. Common. Decorah (Savage), etc.


Batrachium trichophyllum (Chaix.) Bossch. (Ranunculus aquatilis var. trichophyllus Gray.) Common White Water Crowfoot. Abundant in Bear creek near Highlandville.

Thalictrum dioicum L. Early Meadow-rue. Common on wooded slopes. Decorah (Savage), Hesper.

Thalictrum purpurascens L. Purplish Meadow-rue. Common in open places. Calmar, Decorah (Goddard), etc.


Podophyllum peltatum L. May Apple. In deep woods. Not common. (Fitzpatrick.)


Menispermum canadense L. Moonseed; Yellow Parilla. Quite common, in woods. Decorah (Savage), Hesper.
Order 10. Papaverales

**Family 1. Papaveraceae.**

*Sanguinaria canadensis* L. Bloodroot. On well-wooded slopes and banks, not rare. Decorah (Savage), Hesper.


*Bicucullaria canadensis* (Goldie.) Millsp. (*Dicentra canadensis* DC.) Squirrel Corn. Reported by Fitzpatrick.


**Family 2. Cruciferae.**

*Lepidium virginicum* L. Wild Pepper-grass. A common weed. Hesper, Calmar, etc.


*Sisymbrium officinale* (L.) Scop. Hedge Mustard. A common naturalized weed. Calmar, etc.


*Brassica nigra* (L.) Koch. Black Mustard. A common introduced weed. Calmar, etc.

*Brassica arvensis* (L.) B. S. P. (*B. sinapistrum* Boiss.) More common than the preceding, and observed at several stations. (Fitzpatrick.)


*Roripa armoracia* (L.) A. S. Hitch (*Nasturtium armoracia* Fries.) Horse-radish. Run wild. (Fitzpatrick.)

*Cardamine bulbosa* (Schreb.) B. S. P. (*C. rhomboidea* DC.) Spring Cress. In bogs, etc. Decorah (Savage).

*Cardamine hirsuta* L. Bitter Cress. In moist grounds. (Fitzpatrick.)

SUB-CLASS II. DICOTYLEDONES.

*Bursa bursa-pastoris* (L.) Britt. (*Capsella bursa-pastoris* Moench.) Shepherd’s Purse. A very common introduced weed. Decorah (Savage), Calmar, etc.

*Camelina sativa* (L.) Crantz. False Flax. An introduced weed. (Fitzpatrick.)

*Draba caroliniana* Walt. Carolina Whitlow-grass. In sandy places. (Fitzpatrick.)

*Sophia intermedia* Rydb. (*Sisymbrium canescens* Nutt., in part.) Western Tansy-mustard. On dry ridges, etc. Decorah (Savage).

*Arabis lyrata* L. Lyre-leaved Rock-cress. On rocks, etc. Locally common. Decorah.


*Arabis laevigata* (Muhl.) Poir. Smooth Rock-cress. On rocky slopes, etc. Decorah (Savage).

*Arabis canadensis* L. Sickle-pod. In woods, etc. (Fitzpatrick.)

*Arabis brachycarpa* (T. & G.) Britt. (*A. confinis* S. Wats.) Purple Rock-cress. In rocky places. (Fitzpatrick.)

*Erysimum cheiranthoides* L. Worm-seed Mustard. Along borders and on banks. Not rare. Decorah, etc.

*Berteroa incana* (L.) DC. Hoary Alyssum. Not common. Decorah.

**Family 3. Capparidaceae.**


**Order II. Rosales.**

**Family 1. Penthoraceae.**

*Penthorum sedoides* L. Ditch Stonecrop. In low wet places. Locally common. Decorah, etc.

**Family 2. Parnassiaceae.**


**Family 3. Saxifragaceae.**


Mitella diphylla L. Two-leaved Bishop's Cap. Common, on shaded banks. Decorah (Savage), Hesper.

Chrysosplenium iowensis Rydb. (C. alternifolium L.) Iowa Golden Saxifrage. Rare, on shaded mossy banks. Decorah (Goddard). Also found in Dubuque county.


Ribes cynosbati L. Wild Gooseberry. Locally common, on rocky banks. Decorah. Also observed at Canoe creek, both forks of Bear creek, Highlandville and Ft. Atkinson.


Ribes floridum L'Her. Wild Black Currant. Not rare, in low rich woods. Decorah. Also observed at Hesper, Canoe creek, and north fork of Bear creek.

Ribes rubrum L. Red Currant. Rare, in deep woods at Hesper. May be introduced, but appears to be native.

Family 5. Platanaceae.

Platanus occidentalis L. Sycamore; Plane-tree. In low woods. Rare, observed only at Bluffton.

Family 6. Rosaceae.

Opulaster intermedius Rydb. (Physocarpus opulifolius, in part.) Common on wooded banks and in thickets. Decorah. Also observed along Canoe creek, north fork of Bear creek, and at Bluffton and Kendallville.

Spiraea salicifolia L. American Meadow-sweet. In swamps. Decorah. Also observed at Ft. Atkinson.

Rubus americanus (Pers.) Britt. (R. triflorus Rich.) Dwarf Raspberry. Swamps. (Fitzpatrick.)


Rubus procumbens Muhl. (R. canadensis L.) Dewberry. In sandy or rocky soil, not common. Decorah, Hesper. The specimens from the latter locality have an unusually large number of leaves having but one large leaflet. This form was reported by the writer under the name of R. baileyanus,* a species which, so far as known, does not occur in Iowa.


Sibbaldiiopsis tridentata (Soland.) Rydb. (Potentilla tridentata Soland.) Three-toothed Cinquefoil. Very common on the St. Peter sandstone exposures northeast of Hesper.

Fragaria virginiana Duches. Wild Strawberry. In open places, locally common. (Fitzpatrick.)


Potentilla monspeliensis L. (P. norvegica L.) Rough Cinquefoil. Rather common, on banks and in thickets. Calmar.

Potentilla canadensis L. Five-finger. Common in dry soils. Moneek, Canoe creek, etc.

Geum virginianum L. Rough Avens. Moist woods. More common than the preceding at Hesper.

Geum macrophyllum Willd. Large-leaved Avens. In moist woods. (Fitzpatrick.)

Sieversia ciliata (Pursh.) Rydb. (Geum triflorum Pursh.) Reported by Fitzpatrick.

Agrimonia hirsuta (Muhl.) Bick. (A. eupatoria L.) Common in woods. Hesper, etc.

Rosa blanda Ait. Smooth Wild Rose. Not rare, on shaded banks, etc. Decorah.


Rosa humilis Marsh. Pasture Rose. Reported by Fitzpatrick. A specimen collected by the writer at Calmar is probably this species.

Family 7. Pomaceae.

Malus iowensis (Wood) Britt. (Pyrus coronaria L., in part.) Western Crab-apple. Common in thickets at all the stations named, excepting Calmar.

Aronia nigra (Willd.) Britt. (Pyrus arbutifolia var. melanocarpa Hook.) Black Choke-berry. Very rare. Found only upon an exposure of St. Peter sandstone near Hesper.

Amelanchier canadensis (L.) Medic. June-berry. Rather common, along river-bluffs, etc. Decorah (Goddard), Bluffton. Observed at Hesper, Canoe creek, south fork of Bear creek and Kendallville.

Amelanchier botryapium (L. f.) DC. (A. canadensis var. oblongifolia T. & G.) Shad-bush. Local, on shaded rocky banks. Decorah (Goddard), Bluffton.


Amelanchier alnifolia Nutt. Northwestern June-berry. Locally frequent on dry slopes. Decorah (Savage), Freeport. Also observed at Hesper.

Crataegus punctata Jacq. Large-fruited Thorn. Very common in thickets. Decorah, Bluffton, Canoe creek, north fork of Bear creek, Hesper, Ft. Atkinson. This is the most common red-haw in the county. Fitzpatrick also reports C. crus-galli, but one of his specimens in the University herbarium, so labelled, is certainly C. punctata. The writer's notes contain references to C. crus-galli, and the species probably occurs, but all the specimens which were collected are typical C. punctata.

Crataegus coccinea L. Scarlet Haw. What has usually been called C. coccinea is rather common in thickets. It is evidently
C. pruinosa K. Koch, as recognized by Sargent, and should probably be called by that name. Kendallville, N. fork of Bear creek.

Crataegus macracantha Lodd. Long-spined Thorn. Rather common in thickets. Decorah (Savage), Canoe creek, Moneek.


Family 3. Drupaceae.

Prunus americana Marsh. Wild Plum. Common in thickets. Decorah, Ft. Atkinson. Also observed at all the stations excepting Calmar and Moneek.

Prunus pumila L. Dwarf Cherry. Very rare. Found only on an exposure of St. Peter sandstone near Hesper, with Aronia.

Prunus pennsylvanica L. f. Wild Red Cherry. Common along borders and in thickets. Hesper, Canoe creek. Also observed at Decorah, Bluffton and north fork of Bear creek.

Prunus virginiana L. Choke Cherry. Locally common, on rocky banks, etc. Decorah. Also observed at Hesper, Canoe creek, both forks of Bear creek, Bluffton and Kendallville.

Prunus serotina Ehrh. Wild Black Cherry. Common in upland woods. Hesper, Canoe creek. Also observed at all the other stations, excepting Calmar.

Family 9. Casapinaceae

Cassia chamaecrista L. Partridge Pea. A common weed, in dry soils. Decorah, etc.

Family 10. Papilionaceae

Baptisia bracteata Ell. (B. leucophaea Nutt.) Large-bracted Wild Indigo. Open places. (Fitzpatrick.)


Lupinus perennis L. Wild Lupine. Collected by Holway at Decorah.

Melilotus alba Desv. White Sweet-clover. A common introduced weed. Calmar, etc.

Melilotus officinalis (L.) Lam. Yellow Sweet-clover. Introduced. Less common than the preceding. (Fitzpatrick.)

Trifolium arvense L. Stone Clover. Introduced. (Fitzpatrick.)

Trifolium pratense L. Red Clover. Everywhere escaped from cultivation. Calmar, Hesper, etc.
Trifolium hybridum L. Alsike Clover. Becoming quite common in waste places. Ft. Atkinson, etc.

Trifolium repens L. White Clover. Common everywhere. Calmar, etc.

Amorpha fruticosa L. False Indigo. Along streams, rather common. Decorah. Observed at Bluffton, etc.


Kuhnistera candida (Willd.) Kuntz. (Petalostemon candidus Michx.) White Prairie Clover. Local, on prairies and dry ridges. Calmar.


Cracca virginiana L. (Tephrosia virginiana Pers.) Goat’s Rue. Reported by Fitzpatrick.

Robinia pseudacacia L. Black Locust. Common, evidently introduced. Observed at Hesper, Bluffton, Kendallville, etc.


Meibomia longifolia (T. & G.) Vail. (Desmodium —not mentioned in Gray’s Manual.) Long-leaved Tick-trefoil. In thickets, etc. Decorah (Goddard), Calmar.


Lespedeza leptostachya Engelm. Prairie Clover. Reported from this county in Fitzpatrick’s Manual.

Vicia cracca L. Cow Vetch. Reported by Fitzpatrick.


Family 1. Geraniaceae.

Geranium maculatum L. Wild Crane’s-bill. In upland woods. Decorah (Savage).

Family 2. Oxalidaceae.

Oxalis violacea L. Violet Wood-sorrel. Not rare, in sandy and rocky places. (Fitzpatrick.)

Oxalis stricta L. (O. corniculata var. stricta Sav.) A common weed, in open places. Calmar, etc.

Family 3. Linaceae.

Linum usitatissimum L. Flax. Escaped from cultivation, chiefly along railway right-of-way. Ft. Atkinson, etc.


Family 4. Rutaceae.

Xanthoxylum americanum Mill. Prickly Ash. Common, in thickets and on rocky banks. Decorah (Savage), Highlandville. Also observed at Canoe creek, both forks of Bear creek, and Bluffton.

Family 5. Polygalaceae.


Euphorbia corollata L. Flowering Spurge. Common in dry, open places. Calmar, etc.


Euphorbia cyparissias L. Cypress Spurge. Introduced, locally common. Decorah.

Order 13. Sapindales,

Family 1. Anacardiaceae.

Rhus hirta (L.) Sudw. (R. typhina L.) Staghorn Sumach. Locally common, on rocky slopes. Decorah, Freeport.

Rhus glabra L. Smooth Sumach. Very common in thickets and along borders, chiefly in dry places. Decorah (Savage), Calmar. Observed at all the stations.

Rhus radicans L. (R. toxicodendron L.) Poison Ivy. Common along borders, and in low grounds. Both bushy and climbing forms are common—the former chiefly in dry places. Decorah. Also observed at Hesper, Bluffton, Kendallville, etc.

Family 2. Celastraceae.


Celastrus scandens L. Climbing Bittersweet. Rather common, in woods and along borders. Decorah. Also observed at Hesper, Canoe creek and at Bluffton.

Family 3. Staphyleaceae.

Staphylea trifolia L. Bladder-nut. Not rare, on rocky banks. Decorah. Also observed at Hesper, Canoe creek and Bluffton.
SUB-CLASS II. DICOTYLEDONES.

**Family 4. Aceraceae.**


*Acer negundo* L. (*Negundo aceroides* Moench.) Box Elder. Common, especially in alluvial soils. Decorah (Savage), Calmar. Observed at all the stations.

**Family 5. Balsaminaceae.**


**Order 14. Rhamnales.**

**Family 1. Rhamnaceae.**

*Ceanothus americanus* L. New Jersey Tea. Common on dry prairies and ridges. Decorah, Calmar. Also observed at the north fork of Bear creek, Canoe creek, Bluffton and Kendallville.

*Ceanothus ovatus pubescens* T. & G. (The variety is not mentioned in Gray.) Downy Red-root. Rare. On dry prairie ridges at Decorah.

**Family 2. Vitaceae.**

*Vitis vulpina* L. (*V. riparia* Michx.) Common Wild Grape. Very common along streams and ascending slopes. Decorah (Savage), Calmar. Also observed at all the other stations.

Tilia americana L. Basswood. Common in rich woods, especially on lower slopes. Decorah. Observed at all the other stations excepting Calmar.

Malva rotundifolia L. Round-leaved Mallow; Monkey-cheese. A common introduced weed, in waste places. Decorah, etc.

Malva crispa L. Curled Mallow. An introduced weed. One specimen reported by Fitzpatrick.

Nupaea dioica L. Glade Mallow. In moist grounds. Not common. (Fitzpatrick.)

Abutilon abutilon (L.) Rusby. (A. avicennae Gaertn.) Velvet-leaf. An introduced weed, common in waste places, etc. Decorah, etc.


Helianthemum majus (L.) B. S. P. (Lechea major Michx.) Hoary Frostweed. Quite common, on dry ridges, etc. Hesper, Calmar, etc. This species was reported from the county by Fitzpatrick under the name H. canadense Mx.

Lechea stricta Leggett. (Not included in Gray’s Manual.) Prairie Pinweed. Locally common on dry sandy or rocky ridges. Hesper, especially on the St. Peter sandstone exposures.


Viola papilionacea Pursh. (V. palmata var. cucullata Gray.) Common Blue Violet. Common, usually in thickets or along borders, sometimes in open places. Decorah (Savage), etc.


Viola canadensis L. Canada Violet. Locally common in rich woods, especially on lower banks and slopes. Hesper.

Order 17. Thymelales. 
Family Thymelaceae.

Dirca palustris L. Leatherwood. Rare and local. Canoe creek.

Order 18. Myrtales.
Family Onagraceae.


Meliolix serrulata (Nutt.) Walp. (Enothera serrulata Nutt.) In dry places. (Fitzpatrick.)


Circaea lutetiana L. Enchanter’s Nightshade. Common in deep woods. Hesper, etc.


Order 19. Umbellales.
Family 1. Araliaceae.


Aralia nudicaulis L. Wild Sarsaparilla. Common on rocky, well-shaded banks. Decorah (Savage), etc.

Family 2. Umbelliferae.

Sanicula marylandica L. Sanicle. Common in rich woods. Decorah (Savage), Calmar, Hesper.

Eryngium aquaticum L. (E. yuccaefolium Michx.) Button Snake-root. Not rare, on dry prairies, but also occurring in moist grounds. Calmar.


Cicuta maculata L. Water Hemlock. Not rare, in swamps. Calmar; Decorah (Goddard).

Deringa canadensis (L.) Kuntze. (Cryptotaenia canadensis DC.) Honewort. Very common in woods. Hesper, Decorah, etc.

Taenidia integerrima (L.) Drude. (Pimpinella integerrima B. & H.) Yellow Pimpernel. Common on rocky slopes. Decorah (Savage), etc.


Family 3. Cornaceae.


**Series II.**

Order 1. Ericales.

**Family 1. Pyrolaceae.**


*Pyrola secunda* L. One-sided Wintergreen. Rare, in deep woods. Hesper, Decorah (Holway).

*Chimaphila umbellata* (L.) Nutt. Pipsissewa. Rare, in upland woods. Hesper.

**Family 2. Monotropaceae.**

*Monotropa uniflora* L. Indian Pipe. Very abundant in deep upland woods. Hesper, Canoe creek.


Order 2. Primulales.

**Family 1. Primulaceae.**


*Dodecatheon meadia* L. Shooting Star. On prairies and treeless ridges. Not rare. (Fitzpatrick.)

Order 3. Gentianales.

**Family 1. Oleaceae.**

*Fraxinus americana* L. White Ash. Fitzpatrick reports this as frequent in rich woods, but the writer saw no specimens which could be so referred with certainty. Most of the specimens reported under this name from Iowa undoubtedly belong to the following species.

*Fraxinus lanceolata* Borck. (*F. viridis* Michx.f.) Green Ash. Common on alluvial grounds, but also extending into upland forests. Decorah, Kendallville. Observed in all the forest-covered parts of the county.

*Family 2. Gentianaceae.*

*Gentiana puberula* Michx. Prairie Gentian. On dry prairies. (Fitzpatrick.)

*Family 3. Apocynaceae.*


*Family 4. Asclepiadaceae.*

*Asclepias exaltata* (L.) Muhl. (*A. phytolaccoides* Pursh.) Tall Milkweed. In thickets. (Fitzpatrick.)
*Asclepias verticillata* L. Whorled Milkweed. Common on dry prairies, etc. Ft. Atkinson.
*Ipomoea pandurata* (L.) Meyer. Wild Potato Vine. Dry soil. (Fitzpatrick.)
SUB-CLASS II. DICOTYLEDONES.

Family 1. Convolvulaceae.

Convolvulus sepium L. Hedge Bindweed. Common in fields and waste places. Decorah (Goddard), Calmar.


Family 2. Cuscutaceae.


Cuscuta gronovii Willd. (C. gronovii var. latifolia Engelm.) The variety latifolia was reported from Hesper by Arthur.


Family 3. Polemoniaceae.


Family 4. Hydrophyllaceae.


Hydrophyllum appendiculatum Michx. Appendaged Waterleaf. In rich woods. (Fitzpatrick.)


Family 5. Boraginaceae.


Lappula virginiana (L.) Greene. (Echinospermum virginicum Lehmi.) Beggar's Lice. Along borders, in open woods, etc. (Fitzpatrick.)
Mertensia virginica (L.) DC. Smooth Lungwort; Smooth Blue-bell. In alluvial woods. (Fitzpatrick.)

Mertensia paniculata (Ait.) G. Don. Tall Lungwort. In woods. Decorah (Goddard; Arthur).

Lithospermum latifolium Michx. American Gromwell. In dry thickets, etc. (Fitzpatrick.)

Lithospermum gmelini (Michx.) A. S. H. (L. hirium Lehm.) Hairy Puccoon. In dry, usually open places. Decorah (Savage).


Lithospermum linearifolium Goldie. (L. angustifolium Michx.) Narrow-leaved Puccoon. In dry soil. (Fitzpatrick.)

Onosmodium molle Michx. (O. carolinianum var. molle Gray.) Soft-hairy False Gromwell. On dry prairie. (Fitzpatrick.)


Verbena urticifolia L. White Vervain. Common introduced weed. (Fitzpatrick), etc.

Verbena hastata L. Blue Vervain. Common in moist places. Calmar, Hesper, etc.

Verbena stricta Vent. Hoary Vervain. Common on dry prairie, etc. Ft. Atkinson, etc.

Verbena bracteosa Michx. Large-bracted Vervain. In dry and waste places. Calmar, etc.

Family 7. Labiatae.


Isanthus brachiatus (L.) B. S. P. (I. caeruleus Michx.) False Pennyroyal. On sandy or rocky slopes, etc. Decorah (Holway).


Scutellaria cordifolia Muhl. (S. versicolor Nutt.) On wooded banks. (Fitzpatrick.)


Glecoma hederacea L. (Nepeta glechoma Benth.) Ground Ivy. A common introduced weed. Decorah (Savage), etc.

Prunella vulgaris L. (Brunella vulgaris L.) Heal-all. Moist woods, waste places, etc. Native, or thoroughly naturalized Calmar, Canoe creek.

Physostegia virginiana (L.) Benth. False Dragon-head. On alluvial banks, etc. (Fitzpatrick.)


Leonurus cardiaca L. Motherwort. Introduced weed, in waste places. Decorah (Savage), Canoe creek.

Stachys palustris L. Hedge Nettle. Wet places. Especially common on borders of prairie ponds or swamps.

Stachys aspera Michx. Rough Hedge-nettle. In wet places. (Fitzpatrick.)


Blephilia hirsuta (Pursh) Torr. In woods. (Fitzpatrick.)

Hedeoma hispida Pursh. Rough Pennyroyal. Dry grounds. (Fitzpatrick.)

Koellia flaxuosa (Walt.) MacM. (Pycnanthemum linifolium Pursh.) Narrow Leaved Mountain-mint. In thickets, along borders, etc. Hesper, Calmar.

Koellia virginiana (L.) MacM. (Pycnanthemum lanceolatum Pursh.) Dry borders and thickets. (Fitzpatrick.)


**Family 8. Solanaceae.**

*Physalis philadelphica* Lam. Ground-cherry. In rich soil. (Fitzpatrick.)

*Physalis lanceolata* Michx. Prairie Ground-cherry. Dry places. (Fitzpatrick.)


**Family 9. Scrophulariaceae.**

*Verbascum thapsus* L. Mullein. Common introduced weed, in waste places. Decorah, etc.


*Scrophularia marylandica* L. (*S. nodosa var. marylandica* Gray, in part.) Maryland Figwort. In woods and thickets. Common. Decorah, etc.

*Scrophularia leporella* Bick. (*S. nodosa var. marylandica* Gray, in part.) Along borders and on prairies. Common. Decorah (Savage), Calmar, etc.

*Chelone glabra* L. Snake-head. In bogs near Hesper. Local.

*Mimulus ringens* L. Monkey-flower. Borders of streams, etc. Common. Decorah, etc.

*Mimulus jamesii* T. & G. Moist grounds. (Fitzpatrick.)

*Gratiola virginiana* L. Clammy Hedge-hyssop. In upland woods, according to Fitzpatrick.


*Veronica peregrina* L. Purslane Speedwell. A common weed, in fields, etc. Decorah (Goddard; Savage).


*Gerardia aspera* Dougl. Rough Purple Gerardia. Rare, on dry ridges near Highlandville.

Gerardia tenuifolia Vahl. Slender Gerardia. In dry woods. (Fitzpatrick.)

Castilleja coccinea (L.) Spreng. Painted-cup; Indian-pink. In open thickets, etc. (Fitzpatrick.)


Family 10. Lentibulariaceae.


Family 11. Phrymaceae.


Family 1. Plantaginaceae.

Mitchella repens L. Partridge-berry. Rare, in deep upland woods. Hesper.

Galium aparine L. Cleavers. Common, chiefly in moist places. Decorah (Goddard; Savage), etc.


Family 2. Caprifoliaceae.


Viburnum dentatum L. Arrow-wood. On moist banks. Not common. The specimens referred to this species may be a form of the preceding. Decorah.

Viburnum lentago L. Sheep-berry; Black Haw. Common in alluvial soils and on lower slopes. Decorah (Savage), Canoe creek, Kendallville.

Triosteum perfoliatum L. Horse-Gentian. Reported by Fitzpatrick. Possibly an error. The writer was able to find only the following species.


Family 3. Adoxaceae.

Adoxa moschatellina L. Musk-root. Rocky woods. Rare. (Fitzpatrick.)

Order 8. Valerianales.

Family 1. Cucurbitaceae.


Family 2. Companulaceae.

Campanula rotundifolia L. Arctic Harebell. Locally common on rocks and rocky slopes. Decorah.
Campanula americana L. Tall Bellflower. On moist wooded banks and slopes. Common. Hesper, Canoe creek, etc.
Specularia perfoliata (L.) A. DC. Venus' Looking Glass. On dry slopes, etc. (Fitzpatrick.)
Lobelia spicata Lam. Pale Spiked Lobelia. In dry open places. (Fitzpatrick.)

Family 3. Cichoriaceae.

Taraxacum taraxacum (L.) K. Karst. (T. officinale Web.) Dandelion. A common introduced weed. Calmar, etc.
Sonchus asper (L.) All. Spiny Sow-thistle. A common introduced weed. Decorah, Hesper, etc.

Family 4. Ambrosiaceae.

Ambrosia trifida L. Great Ragweed. A common weed in low places, along roadsides, etc. Decorah, Hesper, Calmar, Ft. Atkinson.

Ambrosia trifida integrifolia (Muhl.) T. & G. Entire-leaved Ragweed. This variety is found in dry places. Decorah.

Ambrosia artemisiaefolia L. Ragweed. A common weed, along roads, in fields, etc. Hesper, Calmar etc.


*Family 5. Compositae.*

Veronia fasciculata Michx. Western Iron-weed. A common weed in alluvial pastures, etc. Ft. Atkinson, etc.


Eupatorium altissimum L. Tall Boneset. In bogs, etc. Quite common. Ft. Atkinson.

Eupatorium ageratoides L. White Sanicle. In rich woods, common. Decorah, Highlandville.


Lacinaria cylindracea (Michx.) Kuntze. (Liatris cylindracea Michx. and Liatris graminitofila Willd.) Cylindric Blazing Star. Rare, on dry prairies and ridges. Hesper, Highlandville.


Solidago speciosa Nutt. Showy Goldenrod. Common in upland woods, etc. Bluffton.


Solidago serotina Ait. Late Goldenrod. In moist grounds, common. Canoe creek, etc.


Solidago canadensis L. Canada Goldenrod. In rather dry places, not rare. Canoe creek.


Euthamia caroliniana (L.) Greene. (Solidago tenuifolia Pursh.) Slender Fragrant Goldenrod. On dry prairies, etc. Hesper.

Aster azureus Lindl. Sky-blue Aster. On prairies, etc. (Fitzpatrick.)


Aster novae-angliae L. New England Aster. Common on prairies, etc. Ft. Atkinson, Canoe creek. The form with rose-red flowers was also found at Canoe creek.

Aster puniceus L. Purple-stem Aster. Common in bogs. Decorah (Goddard), Hesper, Bluffton. Some of the Hesper specimens approach var. lucidulus A. Gray. The Bluffton specimens are almost smooth.

Aster pinnatifolius Muhl. Crooked-stem Aster. Common along moist borders, etc. Decorah, Canoe creek.

Aster laevis L. Smooth Aster. Common on dry prairies, etc. Calmar, Decorah, Hesper.


Aster ptarmicoides (Nees) T. & G. Upland White Aster. Rare, on rocky ridges. Highlandville.


Aster lateriflorus (L.) Britt. (A. diffusus Ait.) Starved Aster. In open places, along borders, etc. Decorah.

Aster exigus (Fernald) Ryd. (A. multiflorus Ait., in part.) Ciliate-leaved Aster. Common on dry prairies, etc. Decorah.

Erigeron pulchellus Michx. (E. bellidifolius Muhl.) Robin’s Plantain. On dry slopes etc. (Fitzpatrick.)


Erigeron ramosus (Walt.) B. S. P. (E. strigosus Muhl.) Daisy Fleabane. Very common in meadows and fields. A troublesome weed. (Fitzpatrick), etc.

Doellingeria umbellata (Mill.) Ness. (*Aster umbellatus* Mill.)
Tall Flat-top White Aster. In moist prairie. Local. Orleans Twp.

Doellingeria humilis (Willd.) Britt. (*Aster umbellatus var. latifolius* Gray.) Broad-leaved Flat-top White Aster. In moist places, Hesper.

*Antennaria plantaginifolia* (L.) Rich. Plantain-leaf Everlasting. Common on dry ridges, etc. Decorah (Savage), etc.


*Polymnia canadensis* L. Small-flowered Leaf-cup. Common on shaded rocky slopes at Decorah.


*Silphium laciniatum* L. Compass-plant. Still common on prairies. Hesper, Calmar.


*Heliopsis scabra* Dunal. Rough Ox-eye. Common on dry prairies, etc. Decorah, Calmar.

*Rudbeckia triloba* L. Thin-leaved Cone-flower. In thickets, etc. (Fitzpatrick.)


*Rudbeckia laciniata* L. Tall Cone-flower. Common on moist pastures, etc. Calmar.


*Helianthus annuus* L. Common Sunflower. Introduced, in waste places. Ft. Atkinson, etc.


Achillea millefolium L. Yarrow. In dry open places. A common weed. Calmar, etc.

Anthemis cotula L. Mayweed; Dog-fennel. A common introduced weed. Decorah, Calmar, etc.


Artemisia biennis Willd. Biennial Wormwood. Moist banks. (Fitzpatrick.)

Artemisia gnaphalodes Nutt. (A. ludoviciana Nutt., in part.) In dry soils. (Fitzpatrick.)


Mesadenia reniformis (Muhl.) Raf. (Cacalia reniformis Muhl.) Great Indian Plantain. Quite common, in woods. Decorah, Bluffton, Canoe creek.


Mesadenia atriplicifolia (L.) Raf. (Cacalia atriplicifolia L.) Pale Indian Plantain. In rich soil. Rare. Calmar.

Synosma suaveolens (L.) Raf. (Cacalia suaveolens L.) In rich woods. Rare. Ft. Atkinson.


Arctium minus Schk. (A. lappa var. minus Gray.) Common Burdock. Common introduced weed. Decorah, etc.


Carduus altissimus L. (Cnicus altissimus Willd.) Tall Thistle. Common in thickets, etc. Canoe creek, Kendallville.

Carduus discolor (Muhl.) Nutt. (Cnicus altissimus var. discolor Gray.) Field Thistle. Common along borders, etc. Decorah, Ft. Atkinson.


