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NATURAL HISTORY

—OF—

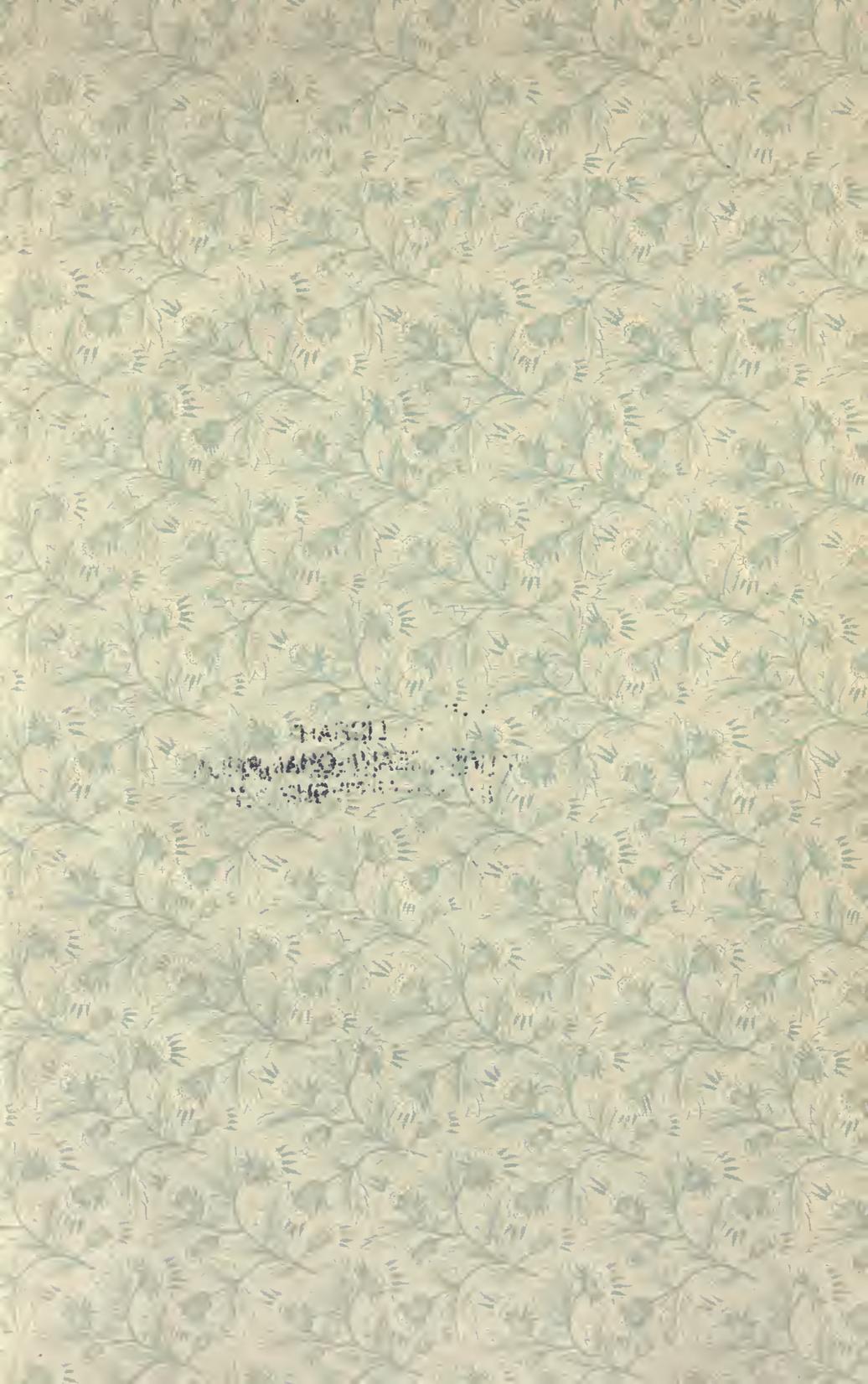
LA SALLE COUNTY, ILL.

...
PART I.
...

BOTANY.

—
J. W. HUETT.

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ILL. HISTORICAL SURVEY



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ESSAY
Mr. Parrish,
City Engineer of Morrison, Ill.
With compliments & thanks
for favors.

June 28, 1900.

FLORA LA SALLENSIS

—BY—

JOHN W. HUETT.

OTTAWA, ILL.,
FAIR-DEALER PRINT,
1897.

Mr. Board,
City of New York
in the Department of
the Board
Nov 27 1892

ESSAY
TOWARD A NATURAL HISTORY

—OF—

LA SALLE COUNTY, ILL.

PART I—BOTANY,

FLORA LA SALLENSIS

—BY—

JOHN W. HUETT.

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ERRATA.

PAGE.	LINE.	
2	2	bottom. Period after corner.
9		Coal II. 2-4 ft. for 2-4 in. 3d col.
9		Put Trenton just above St. Peters. 2d col.
19	9	bottom. In dry for in wet.
21		Ill. list Hepatica acutiflora and drop aentitoba.
21		" " Cornuti for cornuti.
21		" " Cymbalaria for cymbadaria.
22	9	bottom. Strike out commas after Liriodendron and Magnolia.
23	4	" Strike out sep. before pinnatifid.
27	7	" Short for sharp.
28		2d col. Mid-rid for third rib, and form for join.
42	4	top. Ranunculaceae.
42	12	" Acrid for acridi.
43	1	" Erase closes.
43	3	" Caroliniana.
43	15	bottom. Nemorosa for Anemorosa.
43	5	" Scape for seape, and in other places.
46	5	top. Erase R.
46	11	bottom. Jh. for J. and Hydrastis for Hyradis.
48	4	" Put Nymphaea before A.
56	4	top. Abutilon for abutiton.
67	17	bottom. Perennis for perensis.
74	14	" Miter-wort for Miller-wort.
75	6	top. Palustris for palustis.
76	10	" Sempervivum.
77	3	" Melastomaceae.
78	13	bottom. Coloratum.
80	5	top. Rafenesquele.
83	13	" Mollugo for Mollego.
83	17	" Umbelliferae.
83	4	bottom. Mitchella should follow Houstonia page 85.
85	5	" Strike out bell-shaped
96	15	top. Frondosa for frondasa.
96	19	" Cernua for Cornua.
96	1	bottom. Cotula for cot.
98	16	top. Arvensis for arvensic.
102	15	" Anagallis for Angallis.
104	4	" A for H.
104	7	" A for Y.
105	16	" Anoema for anoena.
107	11	bottom. Convolvulaceae for Convol.
109	13	top. Erase the D. before Petunia.
112	1	" Conopholis for coopopholis.
115	14	bottom. Anychia capillacea.
120	19	top. Monilifera for manil.

Hedeoma pulegioides. Pennyroyal. Branching, hairy. 10 to 18 in.; leaves long-ovate, petiolate slightly serrate. Dry fields. Should follow Melissa p. 114.
By a mixing of manuscript Hesperis to Viola was omitted at the proper place on page 51 and will be found on pages 133-6.

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Ill. Hist. Survey

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PREFACE.

THIS little volume, the first part of a more extensive work on the Natural History of La Salle county, has been prepared and published for the purpose of making the results of the author's studies and observations accessible to all who are interested in these subjects. It was begun some years ago, then abandoned and resumed at the earnest persuasion of Prof. R. Williams, to be again dropped for a time and completed under unfavorable and discouraging circumstances and but for the kindness and encouragement of a few real friends would never have been completed.

This book is designed to be a complete catalogue of the plants of La Salle county, including the Filices or Ferns. The Mosses, Liverworts, Lichens or Fungi, as far as we are familiar with them, will be given in Part II, Part I having already greatly exceeded the limits assigned to it. Part II will also contain articles on the Geology, Mineralogy, Zoology in its various departments, Physical Geography, etc., and together they will present as full a presentation of the natural history of the county as is at present possible.

To Prof. Rinaldo Williams of Streator, Prof. Henry L. Boltwood of Evanston, and Mr. Charles F. Johnson of Freeport, late of Marseilles, we are under many obligations for advice and aid; also to Messrs. John F. Nash, C. B. Chapman, L. A. Williams, J. L. Thomas, Giles Roberts, Shaw & Hickling, Kneussl Bros., Charles A. Williams, late of this city, now of Chicago, and last but by no means least Rev. H. H. Gregg, Jr., and Rev. J. P. Hiester of Farm Ridge, for many favors.

We regret that there are many typographical errors but the more important of these are noted in the Errata and others are so obvious as to need no comment.

The first catalogue of the plants of La Salle county was prepared by Prof. R. Williams and published in Baldwin's History of La Salle county in 1877, pp. 486—502 inc., giving the names of 592 plants belonging to 101 orders. A second was published in the Ottawa Republican by Prof. Boltwood 1883—4, giving the names of 762 species and varieties; a third was published by Mr. C. F. Johnson about 1895, giving the names of 665 species and varieties, and this volume gives about 1,030 species and varieties belonging to 340 orders. Gray's Manual 6th Ed. describes 3,157 species belonging to 853 orders. The flora of La Salle county therefore is about one-third that of the United States north of the south line of Tennessee and east of the 100th Meridian.

WEEDS.

We presume that it is not necessary for us to tell the farmer that it does not pay him to raise weeds. We will give a list of those we consider worst:

COMMON NAME.

Ambrosia Sev. Spe.	Horseweed, Ragweed.
Xanthium strumarium,	Cocklebur.
Bidens Sev. Spe.	Spanish Needles, etc.
Arctium lappa,	Burdock.
Cnicus Sev. Spe.	Thistle.
Cynaglossum officinale,	Beggar ticks.
Echinosperrnum Virginicum	Beggar lice.
Convolvulus sepium,	Morning glory. •
Ipomoea panduratus,	Morning glory.
Ipomoea hederacea	Morning glory.
Chenopodiaceae Sev. Spe.	Pigweed, Lamb's quarter.
Rumex Sev. Spe.	Dock.
Amarantus Sev. Spe.	Hogweed, Redroot.
Polygonaceae Sev. Spe.,	Smartweed.
Asclepias Sev. Spe.	Milkweed.
Apocynum androsemfolium	Milkweed.
Euphorbia Sev. Spe.	Milkweed.

Of these, *Convolvulus sepium*, *Ipomoea panduratus*, *Asclepias* and *Apocynum* spread by their roots as well as by seeds and the same is true of one species of *Cnicus*, *arvensis*, the Canada thistle, and these plants are difficult to exterminate, but if kept cut down below the surface they at length die and this is probably the easiest and cheapest way to get rid of them.

The others, if kept from forming seed will, in two or three years, give up the contest and, while care will be necessary to prevent them from returning, they will give little trouble. Mere cutting will not suffice however for most of those in our list will, when cut close to the ground, immediately send out shoots and flower, and perfect seed before the close of the season, it maturing much more rapidly on these shoots than on the undisturbed plant.

Flora La Sallensis.

INTRODUCTION.

La Salle County is situated in the northwestern quarter of the State of Illinois, between the parallels of latitude of 40 deg., 54 min. and 41 deg., 48 min. N. and the meridians of 88 deg. 35 min., 89 deg. 10 min. W. of Greenwich, the latitude of the northern part of the State of California, the parallel of 41 deg. crossing that state north of Reading; Tuscarosa, Nevada; Ogden and Huntsville, Utah; Cheyenne and Laramie City, Wyoming; Sidney, Central City and Omaha, Nebraska; Council Bluffs, Indianola and Oskaloosa, Iowa; Kewanee, Morris and Kankakee, Illinois; North Judson, Warsaw and Ft. Wayne, Indiana; Defiance, Fostoria, Norwalk, Akron, Youngstown, Ohio; Wilkesbarre and Williamsport, Pennsylvania; the north part of New Jersey; Peekskill, New York, and New Haven, Connecticut; Braga, Portugal; Zamora and Barcelona, Spain; Porto Vecchio, Corsica; Viletri and Campobosso, Italy; Durazzo, Monastir, Seria and Sinope, Turkey; Nukha, S. E. of Tflis, Russia; Tashkent. Russia; Chengte, China, and the extreme north part of the island of Hondo, Japan, and

the meridian of Ottawa is nearly that of Mt. Vernon, Illinois; Paris, Tennessee; and the mouth of the Mississippi river, and wholly west of South America, while to the north it runs very near Oshkosh, Wisconsin, and Houghton, Michigan. It thus lies in latitude in that belt of lands which in Europe and Asia is occupied by nations which seem to have passed their meridian, and have passed into the lengthening shadows of life's ebb and evening. Not a first-class power of the Old World lies in this region, and it is somewhat curious that the most progressive of them all, Japan, is the farthest east.

The County is rectangular in form, with a smaller rectangle attached near the southwest corner. It is six townships long by five wide, or roughly approximates a length of thirty-six miles from north to south, and a breadth of about thirty miles from east to west. The small rectangle is about twelve miles from north to south, making the extreme length of the County forty-eight miles, and the breadth six miles, the rectangle containing two full townships. The area of the County would thus be that of thirty-two townships, or 1,152 square miles, but several of the townships contain less than thirty-six square miles, and the total area is about 1,132 square miles, or less by about eight per cent. than Rhode Island, more than half the area of Delaware. and less than one-fourth that of Connecticut.

Surface. The surface is a high, rolling prairie, with narrow tracts of timber bordering the streams, having an elevation of more than 800 feet above the ocean near the northwest corner, of 484 feet in the Illinois valley at Ottawa, and of 752 feet at Ransom. In the southeast corner, (see table of elevations) it is cut into four sections by the deep, narrow valleys of

the Illinois, Fox and Big Vermillion rivers. These sections are of very unequal size, that east of the Fox and north of the Illinois being the smallest, while the northwest and southeast sections are much larger than the southwestern one.

These sections differ in some points, depending upon the geological structure of the country. We will therefore take a brief survey of the geology of the county.

Geology. Beginning at the north line of the state we find thick beds of a grayish yellow, rather soft limestone (the same as quarried at Joliet), called the Niagara limestone because it is of the same age (it contains the same fossils) as that forming the upper part of the precipice over which the Niagara river flows at the Falls. It appears at Oswego, Kendall County, on the Fox River Valley Division of the Chicago, Burlington & Quincy Railway. It dips, sinks, toward the south and near the north line of La Salle County the carboniferous beds, often called coal measures appear as a thin bed, thickening as we go south. A little north of Ottawa coal is found, and this formation is not more than twenty feet thick. Going south it still thickens and, at Streator, is 210 feet thick, while at La Salle it is much thicker. Coal is seldom found more than a mile and a half north of the north bluff of the Illinois valley, but except the floor of the valley from Ottawa west, it covers all the County to the south. Over much of this area, much more than half, but one bed of coal exists, but about Streator two workable beds are found and at La Salle three. The coal beds are designated by numbers from the lowest upward, the lowest, and consequently the oldest, being numbered I. This does not occur in the County. Numbers II, III, IV, V, VI, VII, VIII,

IX and X, or representatives of them, are found within our territory, and II, VII and VIII are mined; III is a double bed, twenty inches of coal, each bed ten inches thick; IV is a bed of poor coal; VII, the great Streator bed; VIII is found in Deer Park township and at La Salle, and IX and X are shales; X a very thin poor coal found about La Salle; V is a black slate. Coals III and IV about one-third the way from Streator to La Salle change to black slates, and are found every where in the banks of streams, and in borings. They are remarkable for their regular thickness and for splitting into large thin sheets. Bed VI is represented by shales more or less bituminous. The coal measures are made up of beds of fire clays, shales or clay slates of various colors, sandstones, generally soft, often highly charged with bisulphide of iron (pyrite, fool's gold, sulphur, &c.) which, decomposing in the presence of moisture and air, causes the rock to crumble and renders it useless for any purpose. This is not always the case however, there being some of these sandstones which withstand the atmospheric agencies and are not split up by frost.

The coal measures also contain in the west part of our field, thick beds of magnesian limestone as well as some thin ones of argillaceous and some of highly arenaceous limestones, but they are of limited extent and local importance as surface rocks.

Resting on the coal measures we find what seems at first sight a confused mass of clays, sands and gravels and of almost every possible combination of them with here and there considerable masses of rock, and these such as are not found here in beds, and they are always more or less rounded, sometimes very smooth. The gravel is very largely limestone and as most pieces

furnish a fossil or two, there is no difficulty in tracing it to its source. It is unquestionably Niagara limestone which has been broken up, the fragments somewhat rounded and smoothed and moved from some other locality to the places where we now find it, for when we bore a deep well in this region we find no traces of the Niagara limestone, but we do find strata that belong below it—far below it. Hence we are led to the conclusion that the Niagara never existed here. But where did the hard, dark or light rocks, for they are of many colors, come from? The nearest point at which we find any trace of them is about seventy-five miles north of the south line of Wisconsin and for the original home of others we must go to the south shore of Lake Superior. But if they came from these distant places how did they get here? We know of but two methods. They might be rolled onward by waters or borne from their native beds by ice in the form of glaciers, and that the gravels were transposed by water and the blocks by ice we think substantially established. If we suppose the country about Hudson's Bay to be covered by ice several hundred feet thick and remember that ice is as amenable to pressure as wet clay, we can readily understand that the weight of the superincumbent matter would tend to force the ice, as it were, to flow out around the bottom and that the greater the depth over the buried region the greater the force causing the outflow and the farther it would extend and this force might be so great as to cause the ice to reach out in long streams as glaciers and even sufficient to force it up and over considerable hills. It would of course flow through valleys and low lands until these were all filled up. When one of these streams encountered a ridge it would pile up against it, slowly climb it and as it went down the

farther side would tear off blocks of rock which would be either rolled or pushed before it, frozen into it and borne along with it. Thus it would grind and plane down the face of the region over which it moved, tearing out great blocks of rock from their beds, crushing and breaking these into smaller masses and grinding the smaller fragments into powder. Besides its grinding action on the rocks over which it traveled would form a great quantity of very fine material such as would go to make clay. Now this is just what has happened and we conclude that there must have been a time when a large tract of country to the north of Michigan and Wisconsin was covered by an immense deposit of ice.

We will now consider the strata below the coal measures. We should have below the coal measures some beds called the Sub Carboniferous, but they do not exist; then the Devonian and we find nothing of it; below it the Silurian upper and lower, but we find no upper Silurian--the Niagara belongs to that--and we have but little of the lower Silurian. We find in a few places a gray, or yellowish gray, hard, half crystalline limestone which the fossils prove to be the Trenton limestone, a member of the lower Silurian group. It occurs on Covel Creek, a half a mile from its mouth. About a mile and a half west of the court house, Ottawa, near the east line of La Salle township on the C. R. I. & P. R. R., near the village of Troy Grove, along the Big Vermillion river from Lowell to Deer Park Canyon at intervals and in a few places on the Fox river. Below it lies a soft, friable, generally light colored, often white, sandstone known as the St. Peter's Sandstone, which is generally rapidly wasted away by the weather. It is largely composed of pure silica. This is the upper member of the

upper Cambrian. This rock forms the bluffs of the Fox river and those of the Illinois from a mile west of Ottawa to Utica

Below the St. Peters Sandstone we find five or six feet of a very porous, yellowish, arenaceous limestone and below a series of bedded, blue, hard, argillaceous limestones, the representatives of the calciferous sand rock of New York. It occurs in the river bottom at Utica and in the north bluff west of Utica for about two miles. It is the well known cement rock from which hydraulic cement a water lime is made. It will be seen from a reference to the tabular view on the next page that the geologic series of the state is marked by the absence of many members and that of La Salle County is still more brief than that of the state. But the reader who would know more on this subject we must refer to the article "Geology" in Part II of this work where these questions are considered.

From the variety of rocks of such widely different ages, it is at once apparent that we must have a great variety of soils, clay, sand, with or without lime and magnesia, and these materials mixed in every possible proportion, with iron, sulphur, gypsum, for this is found all through the coal measures, with or without water and here and there considerable quantities of peat thrown in and some salt and we have the ingredients of an almost endless variety of soil sand accommodations for plants of very diverse characters and requirements. Nor is this all. The low-lying sheltered nooks of the great valleys are never visited by the extreme cold of the high and more exposed prairies and offer a safe retreat for the more delicate of nature's beautiful children.

Thus the circumstances are exceedingly favorable to the existence of a numerous and interesting flora and the student having reasoned thus finds on investigation that he has made no mistake in his reasoning but that the result fully sustains his judgment.



TABULAR VIEW OF GEOLOGICAL STRATA, THE STRATA OF ILLINOIS
AND OF LA SALLE COUNTY.

<i>The World.</i>	<i>Illinois.</i>	<i>La Salle County.</i>
Quaternary { Alluvium { Champlain { Drift	.....	0 to 75 ft
Tertiary { Pliocene. { Miocene. { Eocene.	.....	.....
Cretaceous.	.....	.....
Jurassic.	.....	.....
Triassic, or New Red Sandstone.	8 to 10 ft.	.....
Permian.....	.....	.....
Carboniferous { Upper. { { Lower. { { Sub. {	0 to 1,000 ft.....	Coal X, 9 in. coal near Bailey Falls. Coal IX, a streak of black shaly coal. Coal VIII, 4 ft., poor. Coal VII, 5½ to 7 ft. Coal VI, thin seam shale. Coal V, shale. Coal IV, 20 in. Coal III, 10 and 10 in. Coal II, 2 to 4 in.
Devonian.....	About Rock Island, 15 to 30 ft.	Trenton Limestone, 40 ft., found in borings at Mendota.
Silurian { Upper..... { Lower.....	Niagara. Trenton.....	Streator, 203 ft. St. Peter's Sandstone, 225 ft.
Cambrian { Upper..... { Lower.	St. Peters..... Califerous.....	Califerous { Sandstone } 1,494 ft. { Shales, &c }

The St. Peter's Sandstone is a soft friable rock, some areas composed of almost pure quartz, in other places containing considerable extraneous matter. Its weathering, and it gives way to the action of air and water very rapidly. gives rise to beds of white, almost pure sand.

The Trenton limestone is less obdurate than the calciferous and has contributed considerable calcareous matters to the soils where it is exposed,

The coal measures are made up of limestones, shales, clays and sandstones, the latter often carrying much pyrite-bisulphide of iron. The same is true of some of the clays also and some of them contain a considerable quantity of gypsum crystals--the Selenite of the mineralogist. These carboniferous clays form a most intractible soil and require years of exposure to prepare them for sustaining vegetation of any kind.

We may thus expect to find a great variety of soils in the county for the debris of each of the formations mentioned above is mixed in an infinite variety of proportions with each of the others as well as with the waste of the drift clays, loams and sands, and these occur in situations where they are saturated with water the year round, where only moderately moistened and where they retain but little water. Besides all this mixture and the consequent variety of soils there are some limited deposits of peat, adding another and a very diverse element to the already extensive list.

Climate. The climate is a decidedly continental one, that is it is noted for its rapid and extensive changes. The thermometer in summer often rises above 90 deg. and sometimes to 100 deg. or more and in winter often sinks to 25 or 30 deg. and even lower.

The writer has seen a change of from 20 deg. to -5 deg. in two and a half hours and from 22 to -15 deg. in six and a half hours and from half past two p. m. to 7 a. m. the change was from 22 deg. to -22 deg. a range of 44 deg. in sixteen and a half hours. The changes from cold to warm are almost as rapid and range over 25 deg. or more from 6 a. m. to 3 p. m. The result is a summer with many excessively hot, sultry days, the heat being greater than at New Orleans at the same time and much more oppressive, for there, there is generally a fresh breeze blowing and the nights are cool and one can sleep very comfortably, while in La Salle County there is often little or no wind and the nights are as close and stifling as the days, and a winter with many days as cold as at Minneapolis.

The valleys of the Illinois, Fox and Big Vermillion being from 150 to 240 feet below the level of the prairie are warmer and in sheltered nooks, one there often finds plants, especially, *Sambucus pubescens*, putting forth buds two or three weeks earlier than they do on the adjacent highland and blooming much earlier, and hence some plants are confined to these places, which seem especially calculated for their accommodation.

It should be noticed, however, that the lower parts of the prairies are always the first to show the effects of frost, the highest points being generally the last to become brown and sere from its assaults. We have seen the cotton plant, *Gossypium herbaceum*, in Farm Ridge township long after the cornfields were brown and ice as thick as window glass had formed more than once on the pools of the lower country, lying on either side of the ridge. It is also to be observed that fruit trees on the ridge and near the bluffs bear more regularly than those on the lower lands. The valleys

often escape frosts which devastate the prairies from being sheltered by excessive fogs, which in the autumn are very frequent and not altogether unknown in the spring.

The winds of summer are largely from the southwest or some point near it, with some from the southeast and an occasional breeze from the northwest and northeast. The southwest winds are often dry and warm and very unpleasant, but during the winter they are our most chilly winds, at least for the first day or half day of their continuance. Northeast winds are very common in April and May and are generally damp and chilly. Northwest winds are common but not prevailing winds through the winter and while cold are often as dry and take up moisture with as much avidity as the southwester of summer.

We have then a very changeable climate with extremes of heat and cold and during most of the year rapid evaporation, the dry atmosphere sucking up moisture with great rapidity, drying up the ground and checking the growth of vegetation and sometimes rendering abortive all the farmers' efforts to secure a crop. Such a climate seems to require some more regular supply of water than our rains furnish and we believe irrigation would be found profitable and once introduced would come rapidly into favor.

We have made no comparison of the mean annual temperature of Ottawa and other places because such a comparison is to the last degree misleading and delusive. Let one reflect for a moment on what *mean annual temperature* means. Suppose we have two places of which the mean annual temperature is 50 deg. What does this tell us about their climate? Nothing whatever! These figures would seem to indicate that they had the same or similar climates. But if we take

the mean of the six warmer months and that of the six colder months to obtain our mean, we may have for the first 80 deg. and for the latter 20 deg., for 80 plus 20 divided by 2 equals 50; or we may have 70 plus 30 divided by 2 equals 50; or 60 plus 40 divided by 2 equals 50; or 50 plus 50 divided by 2 equals 50. Of these the first would indicate a warm summer and a cold winter, the last a very equable climate, or very little if any difference between summer and winter. Such comparisons are therefore the sheerest humbug, making things appear alike which have no possible resemblance and conveying totally false ideas. Besides they neglect other very important elements of climate --moisture and its distribution through the year.

If we take the monthly means of temperature for the year we get a better idea of the climate of a region, but these will be to no little extent modified by local causes and must be regarded as only approximately correct for places even a short distance from the place of observation. Especially is this true of the table of temperature given below, for Ottawa is but 484 feet above the Gulf of Mexico, while some points in the northwest corner of the county reach an altitude of over 800 feet, and many points are 700 to 750 feet above sea-level,

We are able to check the Ottawa observations, made for the United States Weather Bureau, by a series kept at Farm Ridge, ten miles southwest of Ottawa on a high ridge, not less than 700 ft. above sea-level, but with a less accurate thermometer and with less attention to the time of observation, as they were made with no intention of publishing them.

In the following table we give the highest and lowest temperature for each month, instead of the mean temperature.

Monthly temperature for the years as given from the observations made by Dr. J. O. Harris, for U. S. Weather Bureau, at Ottawa:

MONTH.	1870	1872	1887	1888	1890	1891
January	54 0 40	-13 52	-26 46	-21	61 0 56	15
February	57 -3 44	-13 54	-6 46	-20	67 -11 54	3
March	62 2 64	14 61	12 60	0	64 -1 63	6
April	87 33 74	32 82	22 83	20	82 17 82	23
May	93 96 88	42 89	51 84	36	90 32 80	31
June	105 55 86	53 93	54 93	50	98 44 95	54
July	104 60 98	58 99	60 93	56	102 48 98	49
August	99 55 89	58 94	50 95	50	101 44 96	46
September	90 49 93	47 89	34 80	34	90 34 91	41
October	74 34 55	25 80	18 76	32	80 28 85	21
November	88 26 60	19 67	-4 76	16	70 23 63	8
December	58 -9 58	8 52	-14 55	12	56 10 50	-12
Mean	51 62	47 73	48 44	48 44	51 96	49 00
Rainfall in inches	25 41	39 42	28 76	30 81	32 16	46 12

A careful examination of the above table will give one a better idea of temperature prevailing at Ottawa than would many pages of description. It will be seen that the mean annual temperature does not vary much, but that the components from which it is derived differ considerably from year to year.

Warmest and coldest day of several years, and date of first and last frost:

1882: Coldest day, Dec. 7, -13; warmest, June 30, 76 deg. at sunrise. Last frost, May 2, 30 deg.

1883: Coldest, Jan. 23, -22; warmest, Aug. 19, 70 deg. at sunrise, 88 deg. at 2: P. M., 99 deg. at 3:40 P. M. Last frost, April 29, 30 deg.; first frost, Sept. 9, 35 deg.

1884: Coldest day, Jan. 5, -30.

1885: Coldest day, Jan. 28, -24.

1890: Coldest day, Jan. 22, -6.

The above data are from the observations of Rev. J. P. Heister, of Farm Ridge. Temperature at sunrise.

Temperature at, or near, sunrise, at Ottawa and at Farm Ridge:

Day.	January.	February.	March.	April.				
1.....	31	29.....	5	10.....	30	34.....	27	36
2.....	32	33.....	12	16.....	30	30.....	37	30
3.....	31	32.....	24	25.....	57	40.....	45	46
4.....	28	27.....	3	6.....	45	50.....	37	46
5.....	19	24.....	15	17.....	51	51.....	35	40
6.....	28	29.....	29	30.....	32	39.....	34	52
7.....	1	8.....	36	36.....	21	33.....	34	40
8.....	11	11.....	30	30.....	37	30.....	27	41
9.....	24	25.....	35	36.....	42	34.....	32	35
10.....	14	16.....	20	26.....	41	44.....	36	38
11.....	26	26.....	13	16.....	33	38.....	33	37
12.....	13	16.....	11	25.....	35	40.....	29	38
13.....	26	25.....	21	15.....	47	49.....	30	35
14.....	36	38.....	29	23.....	27	33.....	42	47
15.....	38	37.....	13	15.....	35	38.....	47	58
16.....	39	40.....	9	5.....	33	34.....	48	58
17.....	42	41.....	36	37.....	59	51.....	55	61
18.....	29	32.....	16	22.....	57	60.....	61	65
19.....	25	44.....	19	19.....	47	48.....	56	61
20.....	49	49.....	7	10.....	47	50.....	40	42
21.....	22	.....	-5	0.....	52	58.....	41	46
22.....	14	17.....	3	8.....	43	45.....	40	43
23.....	19	18.....	1	5.....	32	35.....	32	42
24.....	-10	-5.....	-5	0.....	34	32.....	35	42
25.....	-20	-14.....	-2	0.....	8	11.....	37	49
26.....	3	7.....	11	17.....	9	13.....	12	52
27.....	4	7.....	30	32.....	15	22.....	53	64
28.....	9	10.....	31	32.....	30	34.....	56	62
29.....	30	22.....	.....	.....	8	12.....	55	65
30.....	7	11.....	.....	.....	25	35.....	62	66
31.....	9	11.....	.....	.....	39	42.....	.....	.....

The first column for each month gives the temperature at Farm Ridge at, or near, sunrise; the second, that at Ottawa, at 7:00 A. M. The difference in elevation of the two stations is not less than 200 feet. The distance in an air line is about nine and one-half miles S. S. W. from Ottawa.

Rain Fall. The total rainfall for the year 1894 was 27.70 inches, for 1893 it was 31.04, while during 1887 it was 29.7, for 1878 it was 18.73 only. As a rule the latter part of winter and the spring are wet, the summer and fall dry. There is usually an abundance of rain until the last of May of middle or June,

then very little until October or November. Besides the rains--thunder showers--of the spring and summer are generally local, being often confined to narrow strips of country, so that the moisture is very unevenly distributed. We have records of rainfall for Ottawa only.

Rainfall for each month of the year given from observations of Dr. J. O. Harris, Ottawa, Ill:

MONTH.	1887	1888	1889	1890	1891	1892	1893	1894
January.....		1.80	1.91	1.94	2.36	1.45	2.20	2.38
February.....		1.88	1.16	1.40	2.28	1.52	3.03	1.58
March.....		3.70	1.77	3.33	2.56	2.70	3.30	2.57
April.....	.39	1.23	2.44	1.87	3.96	3.56	5.23	1.51
May.....	1.03	5.30	4.36	3.99	1.84	13.09	1.35	4.01
June.....	1.96	2.01	4.61	6.87	3.99	10.56	2.49	3.03
July.....	1.17	3.58	5.67	.34	4.45	4.92	1.02	0.80
August.....	3.06	1.77	2.00	2.72	5.11	.81	.77	1.75
September.....	2.77	.60	3.92	2.48	1.27	2.56	2.29	7.18
October.....	2.86	2.71	1.51	3.89	.56	.63	1.10	1.63
November.....	2.17	3.58	3.12	2.06	4.75	2.48	5.50	2.07
December.....	3.33	2.22	1.80	.27	1.74	1.84	2.16	1.19
Total.....	18.73	30.47	34.27	31.16	35.07	45.08	31.04	27.70

The country six to eight miles north of Ottawa frequently has heavy showers in the summer when no rain falls at Ottawa. At times showers seem to follow the Illinois valley, and often one seems to divide west of the Big Vermilion and one part of it to go along the Illinois, the other to keep south of the ridge east of the Big Vermilion.

The country south of the Illinois river and for 3 or 4 miles north of it seems to receive less rain and to suffer more from drought than that farther north and cyclones have visited no parts of the county except the extreme northern in Meriden and Earl townships. Hail storms are not common. On one occasion much harm was done vegetation to the west of the Big Vermilion and twice we have seen the tracks of destructive hail storms in Northville township.

The rainfall during thunder storms is sometimes excessive and causes tremendous floods in the small streams, which are sometimes swollen to 10,000 times

their ordinary dimension. In June, 1897, we saw where a stream ordinarily a foot wide and three inches deep had been 20 rods wide and on an average $3\frac{1}{2}$ feet deep, with a current of not less than six miles per hour. Such storms do great damage by furrowing the ploughed fields and carrying away most of the loose earth, in some places washing out plants, in others hopelessly burying them. Besides bridges are swept away, fences destroyed and fields covered with masses of floodwood. Such storms do not occur every year, but seem to become more frequent and destructive. This probably arises from the cutting off of timber, the drainage of ponds and sloughs, and of all low, wet tracts of land by which means the water, instead of collecting in the low places as it once did and soaking into the ground, now rushes into the nearest stream to swell its volume and increase its destructive power.

While draining may be a blessing, it may be a curse and productive of more damage than good. Such work must be intelligently executed to be productive of good and the intelligence has not always been manifest in the execution.

We cannot in this connection too strongly call attention to the evil effects of cutting off the forest from the lands along our streams. And here it will be best to state a few general principles.

I. Regions covered with forest receive no more rain than districts destitute of trees. Other conditions: distance from the sea, elevation and direction of prevailing winds being the same.

II. Destruction of forest does not diminish rainfall.

III. Destruction of forest does facilitate the escape of water, tends to produce floods and to destroy springs.

IV. Clothing a region with forest tends to diminish floods, to create ponds and swamps to prevent extensive washing of slopes and to diminish landslides.

For those who think, the above propositions require no argument, (but all men do not think,) we will therefore say, the land of a forest is covered each autumn with a layer of leaves and rubbish forming a cloak as it were that absorbs and holds much water, retards its flow over the surface and checks and regulates evaporation; hence streams do not rise so fast in a wooded region as in a naked one. The roots of the trees bind the soil together, resist washing, and tend to prevent furrowing.

Already the effects of the removal of the forest may be seen in the excessive washing of the denuded bluffs, extensive landslides, the sudden rise of streams during heavy falls of rain. In the meantime these lands produce little pasture and are of little value for agriculture, as they are usually parched by drought for two or three months of the year and the surface is then dust, the vegetation brown and dry.

With proper care these timbered tracts might be made a source of regular income from their yield of timber, a purpose for which they are well fitted while as pasture or farming land they have little value, not that grain and grass will not grow on them but that they cannot be depended upon to produce crops unless a supply of water can be made sure and this involves irrigation and considerable expense at the outset, besides protection from washing during heavy rains and landslides during wet seasons and in spring.

Tables of elevation of principal points in La Salle County, most of these were obtained directly from the Chief Engineer of the railway on whose line the place is located.

C. B. & Q. R. R.	C. R. I. & P. R. R.	A., T. & S. Fe R. R.
Sheridan 591 ft.	Seneca 520 ft.	Klinsman 654.88 ft.
Sheridan Junc. 644.4	Marseilles. 494	Ransom..... 705.16
Serena. 635.4	Ottawa 488	Streator 624.57
Wedron. 525.5	Utica 482	Reading 624.83
Dayton 542.9	La Salle 465	Ancona..... 629.96
Ottawa 484.4	Peru 469	Eureka 939.01
Hitt 602.4	Spring Valley.. ...	Long Point.... 640.65
Grand Rldge .. 652.8	De Pue..... 471	Dana..... 671.67
Richards 644.3		Minonk 751.06
Streator 621.9		
Kangley.. 639.6		
Ticona 650.6		
La Salle 467.4		
Peru 702.2		
Earlville..... 702.2		
ILLINOIS CENTRAL.	CHICAGO & ALTON.	C. & N. W. R. R.
Bureau Siding. 860 ft.	Streator 681 ft	DeKalb 896 ft
Mendota..... 758	Smithsdale 631	Shabbona 816
Homor 725	Blackstone ... 744	Earlville 696
Dimmick 675	Nevada..... 686	Triumph 689
La Salle..... 527	Dwight..... 650	Spring Valley.. 685
Oglesty 562	Garfield 669.7	
Tonica..... 671	Munster 635	
Lostant 714		
Wencna 711		
Rutland 722		
Minonk 777		

The highest point in the county is in the north part of Meriden township, over 860 feet above the Gulf of Meexico.

Distribution of Plants. From what has been said of the diversity of soils and the physical characteristics of La Salle County, the reader will not be surprised when we claim for it a very extensive flora, nor wonder that some plants are confined to a very limited area, for plants have as distinct likes and dislikes as have human beings, or it may be nearer the truth to say, that some require one element for their support, others another. Some flourish best in a soil rich in lime, others prefer sand, and still others a mixture of the two. Some flourish only in wet lands, others in wet regions. Yet making due allowance for all these differences some are not found where we should confidently look for them; while some occur and appear to be vigorous and healthy where one would not expect to meet with them. Many are found but sparingly and several are restricted to very narrow bounds For instance, we have found *Orchis Spectabilis* at only one place and heard of its being found in another; of *Osmunda regalis* we have seen

three plants and these are all within an 80 acre lot; *Habernaria*--*Plantanthera* of Wood--*Psycodes* two or three times and in widely separated localities. *Goodyera pubescens* in two widely separated localities; *Antigramma rhizophylla*--walking fern--at three places; *Poterium canadiense*--*Sanguisorba* Wood--at one place; *Cypripedium* we have found south of the Illinois river only; *Gentiana crinita* in but four places; *Nymphia odorata* three localities. This list might be greatly extended, but the above will suffice to show how strangely plants are distributed.

About two miles west of the court house at Ottawa is a tract of land presenting a great variety of soil ranging from naked sandstone through loose sand to a peat bog and having extending across it a bed of limestone. Parts of it are very wet, others are dry, and here we find a flora altogether different from that of any other tract known to us. Again, several plants flourish south of the Illinois river, which either are not found at all or very sparingly, north of the river as *Quercus imbricaria*, *Gillenia stipulacea*, &c.

Many plants once common are becoming scarce. Among these may be mentioned *Spiranthes cernua*, and *S. gracilis*, *Cypripedium pubescens*, *C. spectabile*, *Jeffersonia diphylla*, the *Liatris*, once very common, *Orchis spectabile* and the *Gentians*. In some sections of the country, especially where hogs have run at large and where sheep have been pastured for some years nearly all the flowering plants have vanished and the woods have for the botanist a lonely and deserted aspect. To many plants--the *Liatris*--cultivation means death, while the more hardy *Silphii*, if not benefited, are at least not exterminated by the cultivator's efforts. *Oxalis violacea* holds its own however much the soil

is stirred, but the Orchids soon disappear when disturbed. It is probable that a few years will suffice to destroy some of our most beautiful flowering plants—the *Liatris*, *Castilleia*, *Gentian*. It is much to be regretted that a small tract of land in its natural state could not have been reserved as a park and the native plants given a home secure from the snout of the hog, the teeth of the sheep, and from fire and the plough. To coming generations many of them will be things of which they have no idea except as it is gathered from books and poor pictures.

If we compare our flora with that of a part of northern Ohio, lying near Cleveland, we shall find much that is similar as the following list will show. The dash indicates that the plant is wanting.

<i>Illinois.</i>	<i>Ohio.</i>
<i>Climatis Virginiana</i>	
" <i>Viorna</i>	—
<i>Animone Caroliniana</i>	—
" <i>Virginiana</i>	
" <i>Cylindracea</i>	
" <i>Pensylvanica</i>	
" <i>Nemorosa</i> , rare.....	
" <i>Thalictroides</i>	—
<i>Hepatica Acutiloba</i>	Triloba
" <i>Acutiloba</i>	
<i>Thalictrum Dioeum</i>	
" <i>Cornuti</i>	
<i>Ranunculus Mutifidus</i>	
" <i>Cymbalaria</i>	—
" <i>Abortivus</i>	—
" <i>Fascicularis</i>	—
" <i>Repens</i>	—
" <i>Recurvatus</i>	
<i>Myosurus Minimus</i>	
<i>Caltha Paucustris</i>	—
<i>Aquilegia Canadensis</i>	
<i>Delphinium Tricorne</i> , rare.....	Rare
<i>Actea Scicata</i> Var <i>Alba</i>	—
<i>Liriodedron Tulipifera</i> , not native and rare.....	Native, common,
<i>Asimina Triloba</i>	
<i>Menispermum Canadense</i>	
<i>Berberis Vulgaris</i>	
<i>Jeffersonia Diphyla</i>	—
<i>Podophyllum Peltatum</i>	

It will thus be seen that most of our ranunculaceae are found there, but that several plants conspicuous here are wanting in that region. Among the *Violacea*

lanceolata, pedata and hastata are wanting, while blanda, rostrata and cucullata are abundant. Among Compositae the Liatrii and Kuhnia are wanting as also Rudibeckia, except hirta and that has been introduced from the west and several species of Solidago, Helianthus, and several other genera are wanting or represented by one or two species only.

Fifty miles west of Cleveland the Flora undergoes a great change. The Liatrii appear, Ipomea panduratus flourishes and many other plants common to the prairies are found. The northwest corner of Indiana presents a flora very different from either ours or that of northern Ohio. As compared with either it is rich in Ericaceae and is more like that of Marquette, Michigan, than either of those mentioned. The difference extends to forest trees and also to Cryptogams. In the Michigan and Indiana districts ferns are few and mosses are scarce. Our district has more ferns than northern Ohio, but here Osmunda regalis is but seldom seen, there it is found in every swampy tract, while Asplenium, Adiantum, Onoclea, Pteris are as common as they are here, but Antigramma and Pellea are not seen and Woodwardia not found here, flourishes in peat bogs there.

Among forest trees northern Ohio has all which are to be found here and in addition to those, the beech, fagus ferruginea, liriodendron, tulipifera, castanea vesca, nyssa multiflora, magnolia, acumminata, but some species of the oak, e. g. quercus imbricaria are unknown to its flora, while alba and macrocarpa are common to both regions.

The above are but a few examples of the differences to be observed between the flora of regions lying in almost the same latitude and not far distant one from the other, or lying in nearly the same longitude as does

the Marquette region of Michigan and Northern Indiana, yet one 3 deg. farther north than the other.

A Few Words of Explanation. A plant is made up of root, stem, leaves, flowers and fruit. The root is that part by which it holds itself in the ground or is attached to other plants, for some plants live on others and do not send roots into the ground.

Roots are the thread like fibres which penetrate the ground. They extend themselves by pushing out from the end.

A potato, a carrot, a beet, a turnip, an onion are not roots, but forms of stems. The roots in each case are the little threads which extend from the potato, carrot, onion, &c, into the ground.

The more extensive are the roots of a plant the greater the area of soil from which it draws its food supply. If the plant is a perennial the roots become hard and woody near the stem and keep pushing out farther and farther year by year. These hard, woody roots are always soft and spongy at the end and this is the part that advances and it is these tender ends that are, as it were, the mouths of the plant. When they are broken off the roots which remain cannot gather food until these broken ends are repaired by new ones being formed and for this reason, when we remove a plant its growth is generally checked for a time, because it cannot collect food, unless we have taken great care to save the roots from damage and put them back into a good position in the ground and to press the earth firmly and closely about them.

The stem is that part of the plant that appears above ground in most cases, but not always. For the potato is an underground stem, the top is but the branches of the stem. So with many other plants stems generally branch or divide and bear leaves, flowers and fruit.

Leaves are flat, thin, generally green bodies attached to the stem or branches of the plant. They vary wonderfully in shape, size and color.

We will consider a few of the many forms of leaf.

If it is made up of one piece or part, like that of the apple, plum, sunflower, beet, dandelion; &c, it is a simple leaf.

If made up of two or more pieces or parts like the leaf of the rose, pea, clover, potato, tomato, bean, locust, hickory and many others, it is called a compound leaf.

If of three pieces like the clover, bean, &c, it is trifoliolate.

If of five or six pieces and shaped like the hand it is palmately foliate.

If of several leaves arranged on both sides a stem as in the rose, pea, locust, it is pinnate.

Pinnate leaves may be made up of an odd or an even number of leaflets; if of an odd number there is a leaf at the end of the stem, as in the walnut, hickory, tomato; if of an even number the stem ends abruptly or is continued, as in the pea, in a tendril, by which the plant sustains itself.

A leaf that is widest at the apex or outer end and tapers gradually to the base so as to be wedge-shape, is called cuneate.

Leaves which are wider than long, and shaped like a kidney, are called reniform.

A leaf that is diamond shaped is called rhomboid.

A leaf having more than three sides is polygonal.

If shaped like a violin or fiddle, it is panduriform.

If cut and toothed, seppinnatifid leaf has a large lobe at the apex, it is lyrate.

If the margin of a leaf is made up of small curves, it is sinuate; if of short, regular curves, forming low,

rounded teeth, it is crenate; if the curves are long and gentle, it is wavy.

If the teeth point backward, they are repand; if not near together, but with space between them, they are distant.

Leaves which are deeply cut or notched. as the oak, are called lobed.

If the edge of a leaf is straight without notches or curves it is called entire, as the bean, pea.

If toothed like a saw it is serrate, as the rose.

If the notches are large it is toothed, as the elm.

If there are two sets of notches one finer than the other it is doubly serrate.

If shaped like an egg, the stem at the large end, ovate.

If shaped like an egg, the stem at the small end obovate.

If widest at the outer end spatulate

If rounded at the ends and longer than wide, oval or oblong.

If very narrow in proportion to width, linear as most grasses.

If long, narrow, stiff and sharp pointed, ensiform, as the blue flag. If the stem is near the middle of an entire leaf it is said to be peltate as the nasturtium,

Leaves may be smooth having no hair or down on their surface.

Hairy, clothed with hairs, more or less numerous.

Wooly “ “ soft, sharp, white hairs.

Downy “ “ very soft, short, matted hairs.

Rough, having a rough feel to the hand like the elm.

Prickly, clothed with stiff, sharp, stinging hairs or prickles.

Leaves may be thin like those of the locust and basswood.

Thick, like the plantain, beet.

Fleshy, like the purslane and live forever.

Stiff, like those of the beech, ironwood, and elm.

The leaf is made up of two parts the stem and blade. The blade is the broad, green part.

The edge of the leaf is the margin, the outer end the apex, the part next the stem the base; the upper side, the upper surface the lower side, the lower surface. The two surfaces are frequently very unlike. They may be of very different colors, one may be smooth, the other rough, &c; both sides of the leaf should be looked at.

The flower is made up of four parts, the calyx, corolla, stamens and pistils.

The calyx is the outer, generally green envelope in which the flower is at first wrapped up.

The corolla is the colored leaves generally called the flower.

The stamens are small, thread like columns at top of each of which is a little box-like body, which opens and discharges a generally colored powder and then withers away.

The pistil is a larger column, or there may be several of them, the base of which enlarges and forms the fruit. This part is called the ovary.

But the flowers of many plants have no corolla and some plants have neither calyx nor corolla. Sometimes the stamens and pistils are separate but on the same plant, as in corn, where the tassel is the stamens, the silk the pistils and there is one for each kernel. Sometimes there is a little silk among the tassels and then we have some corn there. In some cases, as in some willows; the stamens are on one plant and the pistils are on another. This is the case with some plants, but not many.

The fruit or seed, for correctly speaking, a peapod, a peach, an apple, a pumpkin, a tomato, a hickory nut, an acorn, and a kernel of corn are all fruits, that is, they are each of them the product of one flower, is usually perfected in one season, but in some cases not until the second year. Fruits differ much from each other and should be carefully examined.

The stem bearing a leaf is called a petiole. Leaves having a stem, as those of the apple, are said to be petiolate; if they have no stem, as in the thistle, they are said to be sessile.

The stem bearing a flower is called a peduncle; flowers having no stem are called sessile.

A stem having no regular leaf, but one or more flowers is called a scape, as the flower bearing stem of the bloodroot, hepatica, oxalis. Sometimes there is a small leaf or a pair of them at the base of the leaf stem; these are called stipules. They may be very small, no more than bristles, and sometimes fall off soon after the leaf expands. Sometimes there are small leaves below the flower; these are called bracts.

If we plant a bean or squash seed, in time, two thick leaves appear above ground and from between these other leaves will spring, different in form and larger. These first leaves are called cotyledons and most of the seeds we plant send up two of them and are called dicotyledons or two cotyledons, di meaning two. But if we plant corn, wheat, oats. only one cotyledon appears and all plants--the grass and sedge families, as also the lilies and many others having but one seed leaf are called monocotyledons (mono meaning one). The pines and their allies have more than two cotyledons and may be called polycotyledons.

If now we examine some plants; part dicotyledons, part monocotyledons, we shall find many differences between them; of these the chief may be summed up as follows:

<i>Dicotyledons.</i>	<i>Monocotyledons.</i>
Two seed leaves.....	One seed leaf.
Stem branches.....	Seldom branches,
Leaves various shaped often lobed....	Leaves long, narrow, parallel veined.
Leaves net veined that is the	Leaves parallel veined that is, they
Veins run in various directions and	are nearly parallel to the third rib
run in to each other forming a net	and do not join a net work.
work.	Flower has its parts in 3s.
Flowers have their parts in 1s, 2s or 5s	Calyx and corolla alike.
Calyx and Corolla generally different	
one from the other.....	
Stamens 2 to 100 or more.	Stamens 3, 6.
Pistils 1 to many	Pistils 1, 3, 6.
Fruit 1 to many, celled.	Fruit 1, 3, 6 celled.
Stem composed of bark, wood pith.. . .	No distinction of bark wood and pith.

Flowers may be alone or solitary one on a peduncle, or in clusters variously arranged. If placed one above the other on a long stem it is called a spike, if on one side of the stem forming a one sided spike it is called a raceme; if they form a flat topped cluster as in elder, yarrow, apple, it is called a cyme; if the branches bearing the flowers are all the same length, as in caraway, parsnip, fennel, it is an umbel; if the flowers have no peduncles but are gathered into a close head it is a head or capitate cluster; if like red top grass, oats, spirea, it is a panicle; if on a thick, fleshy column like Jack in the Pulpit, or the wild turnip it is a spadix. A perfect flower is one having both stamens and pistils, and stamens and pistils alone constitute a perfect flower, although both calyx and corolla may be wanting. If a flower has no stamens or no pistils it is imperfect ; if the stamens are present it is a staminate flower, if the pistils are present we call it pistillate.

A flower is symmetrical when there is the same number of each set of organs and they are similarly

placed; otherwise it is unsymmetrical or asymmetrical. The rose poppy and apple are symmetrical.

Flowers are regular when all of the same parts are of the same form and size, if not they are irregular as the bean, pea, balsam, &c.

Flowers are also said to be fertile or barren. A fertile flower is one that produces fruit; as only flowers having pistils can produce fruit fertile flowers are also pistilate flowers and the barren flowers are those having stamens only.

Flowers may last but a part of a day, a day or several days. Those lasting but a short time are said to be evanescent or ephemeral.

The calyx and corolla sometimes fall away. sometimes remain, the corolla withering up, but the calyx remaining green and vigorous. Where it falls off early it is said to be caducous.

Trees, the leaves of which fall every autumn are said to be deciduous, those retaining their leaves, evergreen. Most of the evergreens of cold and temperate climates are cone-bearing or coniferous trees, but in warm regions most of the plants are evergreen.

Classification of Plants. While this book is not intended to take the place of treatise on Botany. it seems proper that we should say a few words on the classification of plants. If you study the subject you will find that there is not that perfect agreement among those, who are considered authorities on the subject that would spring from the certainty that they are right, besides you will learn that there is more than one classification, that these differ greatly, and that the views of those who have given most time and care to these studies are far from being in accord on many points. We shall therefore confine our notes on this part of the subject to making clear the meaning of

the terms, family genus, species and variety, and how the last is produced.

If we gather a dozen plants and give them a lights examination we shall find no difficulty in detecting many differences between them and we may also find that two or more of them in some points resemble each other, that they have woody branching stems, leaves much alike, that each has stipules; also that the flowers and fruit of one are much like those of another, yet have some points of difference; we conclude that they belong to the same genus but to different species. If the differences are slight, as the size and color of the flower or a little variation in its form or in that of the leaves we call one a variety of the other. As an illustration we may take the Rosacea. We have a great many varieties in cultivation but when we examine the leaves, stems, stipules, and prickles we can at once refer a great many of them to the same species, and when we examine the wild roses we shall also find no more than 4 or 5 species, but we shall also find that the flowers of the apple, pear, plum, peach, thorn and several other plants are constructed on the same plan as that of the rose--a calyx of five sepals, corolla of five petals, stamens many and seeming to be attached to the head or top of the stem, the receptacle, pistils one or five, more or less united; while they differ greatly in leaves and other points; hence we place them in the same family, which as the rose is the most prominent plant of the group, we call Rosacea.

There are many plants which have their flowers in loose, flatheads, somewhat resembling an umbrella. Here we find the carrot, parsnip, dill, caraway and many other plants. In flowers and fruit these plants are much alike and we make of them a family, which from the peculiar arrangement of the flowers--an umbel

--we call Umbelliferac. A family then, is a collection of plants whose fruits are similar. A genus is a division of a family having stems, leaves and flowers much alike.

Species are members of a genus differing in form of leaf, of flowers, hairiness and other small matters.

Varieties are members of a species differing in size, color, time of flowering, &c.

Varieties are not permanent and being neglected revert to the usual form of the species. But it is probable that favorable circumstances and care for many years may give to a variety the character of a species, and it is not improbable that species are but varieties of the generic type, the best example of the genus. That *true* genera ever become something else, we do not believe. That our systems of classifications are perfect no one claims and that some of our genera are defined by very artificial characters and that in some cases our dividing lines are not wisely drawn will be readily conceded, and this has no doubt caused much confusion of thought and led to some very baseless and uncalled for generalization.

That there is such a thing as evolution, taking the word to mean a process of change, no naturalist doubts that it accounts for creation and all its facts and mysteries none but an idiot or a lunatic will argue. There never has been, never will be any "endless chain of being;" and what there is of it plainly indicates the existence of a Creator and the oversight and direction of an intelligent, omniscient and omnipotent mind.

The reader will understand that the description following an order applies to all members of that order, that following the name of a genus to all the species of a genus, while that of a species applies to that species only, the aim being to bring out in it the points

in which the species differ from others.

The figures given with most of the species refer to the plant either in flower or in fruit. The terms large, small, tall, low, &c, are to be understood with reference to that of the family or genus. What would be small for a grape leaf would be of mammoth proportions for the leaves of clover.

For instance on page 9 we find *Clematis* which is followed by a description of the genus. This is followed by a description of the species. This is followed by *C. Virginiana*--*Clematis Virginiana*. Flowers, W. (white.) J. Aug. (July and August), that is, flowers through July and August. Damp places, that is, grows in damp places; not common, that is, not found in many places. Sometimes figures are used alone without the word high as 25 ft. (25 feet high). The first part of a description applies to the stem unless otherwise stated. It will be borne in mind that the descriptions of this work make no claim to being scientific. Their object is to direct the attention of the reader to those features of a plant which enable him to distinguish it from others. If we have accomplished this we have attained our purpose. We have attempted to be clear, to use as few words as possible, to give the student just the information wanted and yet not to frighten him by the needless display of our wisdom or overwhelm him by the profundity of our discussion of the mysteries of nature. We have written for plain thinking people and such we hope will find our work suited to their needs.

The word "variable" often follows a description meaning that the plant in one or more respects may be found to differ from the description. The form of the leaves may be somewhat different--indeed one scarcely ever finds two leaves even on the same plant

just alike--it may be slightly downy, or a little hairy instead of smooth, &c. Sometimes these variations are so great as to almost constitute distinct species and yet the extreme forms are so connected by intermediate forms that we cannot regard them as more than widely divergent varieties. In such cases we suspect that the classification is at fault, that the genus is really a species of some other genus and that its species are really only varieties and that these have crossed again and again, producing an endless variety of variant forms.

However there is always a trace of a tendency to vary even among the most staid and unvarying of species. We give below the length and breadth of some leaves of the elm, smilacina, willow and cornus, in each case all from the same plant, and all full grown.

<i>Elm.</i>		<i>Smilacina.</i>		<i>Cornus.</i>	
LENGTH.	BREADTH	LENGTH.	BREADTH.	LENGTH.	BREADTH.
5.25	3.15	4.5	3.7	3.2	1.57
5.25	3.0	3.7	3.05	3.65	1.95
4.66	2.55	3.6	3.4	3.5	1.8
5.3	4.05	Willow.		3.15	1.53
5.7	4.15	4.85	.8	3.3	1.47
3.15	2.4	5.1	.8	3.7	1.97
4.65	2.8	5.05	.7	3.7	1.95
4.58	2.25	4.98	.82		
4.1	3.9	5.23	.83		
3.95	2.2	Thorn.			
4.95	2.85	3.5	3.		
3.45	2.33	2.95	2.85		
4.8	3.05	2.55	2.25		
4.33	2.4	2.42	2.25		
3.95	2.3	2.35	3.15		

The above are not extreme cases but such as may be

met every day on most plants. In many cases, especially in the asters and golden rods the root and stem leaves being very different, so different in some cases that it would not seem that they belong to the same plant did we not find them there. If there are leaves near the ground be sure to examine them as they must be regarded as the true leaves, the upper ones as modified forms of these.

Abbreviations and Explanations. The following abbreviations are used throughout this flora:

Jan.	January,	W.	White,	N.	North,
Feb.	February,	Bl.	Blue,	S.	South,
Mar.	March,	Br.	Brown,	E.	East,
Ap.	April,	Blk.	Black,	W.	West,
M.	May,	Y.	Yellow,	N. E.	Northeast,
Ju.	June,	G.W.	Greenish White,	S. E.	Southeast,
J.	July,	O.	Orange,	S. W.	Southwest,
Au.	August,	P.	Purple,	N.W.	Northwest,
Sep.	September,	P.W.	Purple White,	Dia.	Diameter,
Oct.	October,	Pi.	Pink,	Cir.	Circumference,
Nov.	November,	R.	Red,	H.	High, highest,
Dec.	December,	Rs.	Rose,	B.	Biennial,
Var.	Variety,	R. W.	Reddish White,	A.	Annual,
Sp.	Species,	V.	Violet,	Pr.	Perennial,
Gen.	Genus,	Sz.	Scarlet,	Ed.	Edition,
Or.	Order,	Fl.	Flesh color,	Ex.	Exotic.
Fam.	Family	S r.	Striped,	Cult.	Cultivated,
Tr.	Tribe,	Li.	Lilac,	w t.	Wet.
In.	Inch,	St.	Straw color,		
Ft.	Foot or feet,	C.	Crimson,		

Quantity of Seed Produced by Plants. But few of those who observe and cultivate plants have any idea of the quantity of seed they produce.

An apple tree may produce several thousand apples, say 2,500, and each of these may contain 10 seeds, and will probably average 8, so that this tree in a single year produces 20,000 seeds, and if half of these germinate, it would give origin to 10,000 trees each year, enough to plant 250 acres.

But some plants are much more prolific than this. The cockle burr, *Xanthium*, matures more than 200 burrs on each medium-sized plant, and as these plants do not require more than a square foot apiece there may be perfected on a single acre not less than 8,700,000 of these burrs, each of which contains two seeds, warranted to grow.

We have found on a medium sized *Oenothera* no less than 218 pods, each containing over 100 seeds; on a *Polyginum* from 3,000 to 3,600 seeds; on a sunflower, *Helianthus grosseserratus*, 6,000 to 7,000 seeds, and they will probably average 1,000 each, and the plants often stand two or three to the square foot.

While some plants, and the especially worthless ones, are so fruitful, others are comparatively barren or produce few seeds, a few producing but one flower, some three to five flowers each, but these flowers are generally many-seeded, and each head perfects 50 or more seeds.

It will be seen from the above facts that nature is a most prodigal sower, scattering seeds with a lavish but most inconsiderate zeal, the greater part of them to perish at the very dawn of life, but few comparatively to reach maturity and assist in perpetuating the race.

How Plants Travel. That plants extend the area over which they are found is well known and this with many of them is easily accounted for, some having been brought in grain that was sown or among seeds that were planted in gardens. Sometimes too straw has been used as material for packing goods and the seeds of weeds were mingled with it. Thus, even while aiming to advance his interests and promote his comfort and convenience by introducing grains of the best quality or testing some new crop man has brought

in his enemies and given them a foothold they could not have otherwise obtained. Many of what are our most common weeds have thus been imported from the Old World.

But many seeds are born travelers. The seed of the dandelion, lettuce and thistle, milkweed and many others have a sort of plume attached to them, which enables even a gentle breeze to bear them far from their native place and scatters them far and wide. The seeds of the maple and some other trees have wing-like appendages, which enable them to sail on a strong wind to a considerable distance.

Some seeds are greedily eaten by cattle and having hard and impervious coats and many of them not being broken by the teeth, pass through the stomach and intestines free from harm and left in an excellent condition for germination. Birds in like manner scatter many seeds far and wide and sometimes rather large ones, the wild pigeon having a strong liking for acorns. Other seeds, as the cocklebur, beggarticks, the fruits of geum and several other plants are provided with hooks or barbed teeth with which they lay hold of everything that touches them and thus become attached to the hair of animals. Thus they may be carried many miles and scattered over a wide territory. A gentleman residing in South Ottawa informs us that he can remember when the cockle bur was unknown here and that it was brought by cattle driven here to feed. Many seeds are very small and are easily carried along in a lump of mud that may adhere to the feet or hair of an animal and these may be carried long distances before they are dropped, and if the circumstances under which they are left favors germination and growth, they soon make themselves at home.

Heavy seeds such as walnuts, acorns, &c, may be carried to some distance by animals, which use them as food and, swept along by floods. Thus nearly every plant has some means of extending the area over which it grows and these migrations are continually taking place. Since 1887 at least seven plants, before that time unknown to the vicinity of Ottawa, have located here and to all appearances have come to stay.

Such changes are very likely to occur along lines of railway for plants travel by rail as well as on the wings of the wind or on horseback.

Localities of Special Interest to Botanists.

There are in the county several localities of more than ordinary interest to the botanist. Of these one is located about two miles west of the court house on what is known as the old Reddick farm, and has been mentioned before. It is a part of Sect. 9 of Tp. 33, R. 3, E. 3rd P. M. On this tract there is a great variety of soils, both dry and wet, and as a consequence a wonderful collection of plants.

Another locality is on the south side of the Illinois river in South Ottawa township, in the woods and along the foot of the bluff, and just west of the C., B. & Q. R. R., between it and the U. S. Silica Co.'s lands. The ponds once existing here have been partly drained, and this place presents a less variety of vegetation than formerly, but one still finds much of interest in a narrow space.

A third district of very exceptional interest is found on the west side of Covell creek, a fourth of a mile south of the stone bridge on the river road. The variety of plants is great and some of them not common.

A fourth and very interesting locality is the bluff and the narrow slope between it and the Illinois river, in Deer Park township. The variety of plants, espe-

cially of ferns, is great, and many of them are rare, some found only here. This locality is really divided into two fields one extending from the east line of the township to about Lovers' Leap the other from Lovers' Leap to the Vermillion river, some plants being confined to one section, some to the other.

A fifth and very interesting locality is that known as the Black Ash Swamp lying on the south side of the Illinois river about half way between Marseilles and Seneca which has been pretty thoroughly explored by our enterprising and talented friend Mr. Charles F. Johnson, formerly of Marseilles, now of Freeport. Here while some of the conditions are similar to those obtaining in Deer Park Tp., others are not. Some of the plants are the same while several are peculiar to the locality.

The valley of the Vermillion river is also in places rich in the variety of plants and the exuberance of the vegetation and some species are found in these places which seem to occur nowhere else.

The immediate vicinity of Ottawa offers to the botanist a very large variety of plants, a number much greater than is usually found in so restricted an area. Some 350 species of plants belonging to more than 50 orders and some 175 genera may be obtained within a radius of two miles of the court house.

In attempting to identify a plant first carefully examine it. Notice the stem, leaves, calyx, corolla, stamens and pistils and the number of each of the last two. Then look through the natural orders and decide to which it belongs, then look for the genus and then the species. Of some of the families the characters are so very distinct that one cannot make a mistake, as for example the Cruciferae, the Leguminosae, the Compositae, but of others the same cannot

be said. But in general the notes we have given will we think enable one to reach a decision with certainty and dispatch.

If the leaves are compound, flowers of 5 petals with 5 stamens and collected into an umbel, we at once refer it to the Umbelliferae. If the sepals are 4, the petals 4, the stamens 6, 4, 2 and pistil 1, we may be sure our plant belong, to the Cruciferae. If the flowers are shaped like those of the pea and the fruit a pod we at once refer it to the Leguminosae.

The most striking or obvious features of each order are given immediately after its name and this is followed by the descriptions of genera and their included species in order. Read the descriptions carefully two or three times if necessary and look at all parts of your plant with care. Suppose we have a plant that we find has compound leaves, the flowers have five or more, but less than 20 petals, the calyx the same number of sepals, the stamens are numerous but all distinct, the pistils many and distinct but crowded together and the stigma pointed, we may at once conclude that it belongs to Order 1, the Ranunculaceae.

Perhaps the strangest feature of our flora is the presence of plants which generally are found near the seashore or near brackish water as *Hibiscus Moscheutos*, such an exception to all general rules as to seem utterly unreasonable and a fact that led to some serious mistakes and which the writer must confess he was slow, as have been many others, to recognize. Some years since a distinguished botanist visited Ottawa and conversing with a gentleman, who was quite familiar with the flora of the county, when the latter mentioned *Hibiscus Moscheutos*, as being found here, promptly said that must be a mistake. It was a seashore or at least a brackish water plant. Later the

gentleman had the pleasure of sending him specimens of the plant in flower. He now admitted that the determination was correct, but that he could not have believed it was a native of this region without this evidence. He however thought that the presence of salt springs explained the matter. But plants of this character are not all found near salt springs. In fact there seems to be many remnants of a former seashore flora yet lingering here, not merely along the borders of the salt marsh so called, but in other places as well. They are too numerous to have been accidentally introduced, have no properties that make them valuable to man and would thus lead him to introduce them and are not well calculated to migrate unaided. Besides the conditions under which they are found render it certain that this is their native land and that they are but a fragment of a flora that has nearly vanished, a change of conditions having made it impossible for it to sustain itself longer in this region and its former presence being indicated by these hardiest members of its tribes. We shall not attempt to reproduce to the reader's imagination the conditions under which this flora was in the ascendent; we state the fact and leave our audience to draw their own inferences.

Flora LaSallensis. Catalogue of the Plants of La Salle County, Ill., and the adjacent counties of Kendall, Grundy, Livingston, Marshall, Putnam, Bureau and DeKalb, and in general for that part of the state north of the latitude of Bloomington. A few plants confined to the shores of Lake Michigan are not found in La Salle County.

The authorities used have been Prof. Rinaldo Williams of Streator. A name preceded by a W. is from his catalogue, published in Baldwin's History of La Salle

Co.; Prof. Henry Boltwood, now of Evanston, designated by a B.; Mr. Charles F. Johnson, formerly of Marseilles, now of Freeport, indicated by Jh.; and ourself. In a few cases the statements of parties familiar with the subject are referred to. In all other cases the author has seen the plant described.

The descriptions are our own. They are not intended for scientists, but for those who desire to identify a strange plant and the effort has been to catch its most prominent features and present them as clearly as possible. At the same time as far as possible we have followed Wood and Gray and frequently refer to them. The references in all cases to Wood's "Classbook of Botany," copyright 1869, imprint A. S. Barnes & Co., N. Y., 1873, and to "Gray's Manual of Botany," copyright 1867, imprint Ivison, Blakemore, Taylor & Co., 1872, or the fifth revised edition, referred to as 5th Ed. while Wood is referred to by name, Wood. The order is nearly that of Gray's Manual 6th revised Ed.

Flora LaSallensis. A catalogue of the Plants of La Salle and adjacent counties of Illinois.

PHAENOGAMIA OR FLOWERING PLANTS.

Class I. Dicotyledons or exogenous plants: Stems formed of bark, wood and pith, the latter often very small and in large trees scarcely apparent, and increasing by the addition of new layers, usually one each year, between the bark and wood. Stems branching, leaves of various forms, netveined. Plant when it first appears or when the seed sprouts having two leaves, from between which others spring. Flowers generally having their parts in fives or fours.

Sub Class I. Angiospermae: Seed contained in an envelope, as the pea in a pod, the seeds in an apple, the stone in a peach, &c.

Division I. Polypetalous exogens: Both calyx and corolla present, the corolla in several separate parts. In some the corolla is wanting.

Order I. Ranunculacea. Crowfoot, Buttercups: Mostly low herbs. Calyx of 3 to 15 sepals, sometimes colored and appearing like a corolla; corolla of 3 to 15 petals sometimes more; stamens many, seldom few, but distinct; pistils many or few, distinct forming a compact head as small pointed or tailed pods each containing a single seed, a many seeded capsule or seed vessel or a berry; leaves usually compound or much divided, often all radical. Juice, watery, acrid of some species strong enough to raise blisters.

1. CLEMATIS. Clematis. Virgins bower: Sepals usually colored; petals none. Seeds in small, pointed or tailed pods, which each spring from a pistil, and form a compact head.

CLEMATIS. P. Virgin's Bower.

Herbs or vines climbing by tendrils from the ends of the leaf stalks, flowers without petals, the calyx usually colored; stamens and pistils many, the pistils forming a little head, and in fruit the style lengthened and more or less feathery; leaves 3 to 7 leaflets, more or less ovate and acute, opposite.

C. Virginica. Flowers W. in large clusters, seeds with long feathery tails. Ju. Aug. Damp places; not common.

C. Pitcheri. Flowers Pi. P. sepals thick, leather like with recurved tips solitary on long peduncles; on the lowlands; not so strong a growth as the first.

ANEMONE. P. Anemone. Wind-Flower.

Plants with deeply cut and lobed leaves, usually rigid, little divided and few flowered, our species

the flower W., G. closes, W. or P. stem leaves 3, forming an involuere.

A. Carolinian. Flowers, P. to W. 4 to 8 inches high; leaves small and at the ground; involuere small, 3 parted. About Ottawa; sandy lands.

A. cylindrica. Tall; flowers 2 to 6; involueral, leaves two or three times as many as peduncles, each 3 parted; flowers G. W.; head of fruit cylindrical, an inch long. M.; 2 ft. Dry woods.

A. Virginica. Tall, usually 3 flowered, each on a long, naked peduncle; leaves of involuere 2 large, 3 parted, hairy, the middle peduncle naked, G. W., 18 to 24 inches high. Borders of woods and dry thickets.

A. Pennsylvanica. Leaves large, hairy, 1 ft. high, flower W., 1 inch dia., 3 to 5 to a plant, the central one blooming first: then one on each side of it and the peduncles of these branch, each sending out another. Grows in bunches in damp places.

A. anemorosa. Wind Flower; Wood anemone. Low, smooth, erect; involuere of 3 long petioled, 3 parted leaves; flowers W.; purplish outside, 5 to 7 leaved; one-half to one inch broad; 3 to 6 inches high. Ap. M. Woods. Root leaves few.

HEPATICA. P. Liver Leaf. Liver Wort.

Leaves all radical, 3 lobed on long, wiry petioles, hairy, evergreen, rather thick. G. P. to P.

H. acutiloba. Flowers numerous $\frac{1}{2}$ to 1 inch broad, each on a slender, silvery-hairy seape 3 to 6 in. high; W. P. B. Pi., Mar. Ap., Woods.

ANEMONELLA. P. Low, 6 to 12 in. high, smooth with long petioled radical leaves, 3. parted, each part of 2 or three, roundish, somewhat lobed

- leaflets; involuere of 2 or 3, 2 or 3 parted leaflets.
 A. Thalictroides. Flowers, W., $\frac{1}{3}$ to $\frac{2}{3}$ inches broad; several; very slender; M. Woods and fields about trees.

THALICTRUM. P. Meadow; Rue.

Plants with three parted compound leaves, each part composed of many small, roundish, notched leaflets; flowers small, of two kinds, the staminate in dense plume-like greenish or P. clusters.

- T. dioicum. Smooth and pale green, 1 to 2 foot high; leaves all petiolate, leaflets drooping; filaments of stamens hair-like, W., anthers yellow, drooping. Ap. M., Dry lands.

- T. polygamum. Tall, smooth, 4 to 8 ft. high; stem leaves sessile; leaflets thickish; flowers W. some perfect; filaments of anthers white, anthers not drooping. T. Cornuti of the 5th Ed. along streams and in damp meadows.

- T. purpurascens. Stem usually purplish, 2 to 4 ft high; leaves sessile or nearly so, veiny and netted beneath; flowers greenish and purplish. M. Ju. Dry lands.

MYOSURUS. Mouse Tail,

minimum, leaves long, narrow, entire, thick flowers small on 1 flowered seape; fruit forming a spike like head 1 to 2 in. long, 2 to 4 in. high. Each plant seems to be a tuft of narrow leaves and thick stems. Sandy land,

RANUNCULAS, P. Crowfoot. Buttercups.

Low, often, hairy plants, stems frequently trailing after flowering if not before, with bright green, lobed and toothed leaves, yellow flowers and fruits collected in a small head and frequently tailed.

- R. aquatilis. Leaves all under water and divided

- into thread-like segments; flowers W., Ju. Aug.
- R. *Cymbalaria*. Very smooth, sending out long, jointed, slender, runners which root at joints; leaves small, roundish, cordate, crenate, somewhat thick; flowers small, Y.; fruits in an oblong head. Ju, Aug. Near Big Spring S. bank of Ill. one-half mile E. Horseshoe Canyon and just W of Street Ry. Power house, Ottawa.
- R. *multifidus*. Leaves below water with hair-like divisions; above water coarsely cut; flowers Y., one-half inch broad. Between Canal and C. R. I. & P. R. R., E. of Lock 11 and S. E. of U. S. Silica Co.'s works $\frac{1}{4}$ mile.
- R. *abortivus*. B. smooth, erect, branching, 6 in. to 2 ft high; first root leaves roundish, entire, other 3 lobed, those of stem and branches 3 to 5 parted, sessile; flowers small, pale Y., Ap. Ju. Damp woods, very common.
- R. *sceleratus*. A. Smooth; root leaves rounded 3 lobed, lower stem leaves, 3 parted, the lobes toothed, upper lobes nearly entire; stem thick, hollow; 1 ft., flowers small, pale Y.
- R. *recurvatus*. Hairy, 1 to 2 ft. high; leaves nearly all alike; on long petioles; flowers pale Y., sepals reflexed; M. Ju., Woods.
- R. *fasicularis*. Soft, hairy, with close pressed hairs ascending, 5 to 9 inches high; root leaves, 3 parted, each part of 5 to 7 divisions appearing pinnate; flowers bright Y., Ap. M. Dry places, Sandy lands along Ill.
- R. *septentrionalis*. Stems at first ascending smooth or hairy, later becoming 2 or more feet long and appearing like runners, leaves all 3 parted, parts lobed or cut; flowers Y., M. Aug. Wet places. R. repens of 5th Ed.

- R. *Pennsylvanicus*. A. Erect, stout, leafy to top, bristly hairy, 1 to 2 ft high, leaves 3 parted, the parts 3 cleft and toothed; flowers small, calyx reflexed; Ju. Aug. Wet places.
- R. *Isopyrum biternatum*. P. slender, smooth; leaves 3 parted, each division 3 parted and each part 2 or 3 cleft; flowers without petals, filaments white. stamens 10 to 40; 4 to 10 in. high, M. Shady, damp places. Prof. Williams informs us that he has doubts of the correctness of his determination of this plant.
- CALYTHA. Cowslip. Leaves roundish with a deep notch where the stem is inserted, stem branching, bearing a number of bright yellow flowers 1 in. or more in dia.
- C *palustris*, G. 8 to 10 in.; stem hollow furrowed, Mar, Ap. Wet places.
- AQUILEGIA. Columbine, Honeysuckle.
Leaves compound, stem branching, branches spreading. Edges of bluffs.
- A. *Canadensis*. Flowers R. without, yellow within, with 4 horn like processes pendent, mouth downward, 8 to 36 in. M. In cultivations white, purple, &c, flowers are produced.
- J. *Hyrasdis*. P. Orange Root, Yellow pucoon, *Canadensis*, root thick, knotted, yellow; from which springs a leaf and a hairy stem bearing two cordate, serrate, 5 to 7 lobed leaves and a single G. W. flower; fruit a red berry, Ap. M. Woods.
- DELPHINUM. A. or P. Plants with leaves cut into narrow lobes, calyx spurred, flowers irregular.
- D. *tricorne*. Flowers W. or B., M., near Streator, also near Marseilles. Ju., rare.

ACTAEA. P. erect 18 to 36 inch. Smooth with 3 large compound leaves about the middle; flowers Y. W. in a spike; leaflets toothed, pale below.

A. spicata var. rubra, berries, a bright L., as large as peas.

A. alba. Berries white, leaves more sharply toothed than in spicata.

Order 2. Magnoliaceae. Magnolias.

LIRIODENDRON. A large handsome forest tree furnishing excellent lumber; not native here.

L. tulipifereae. A tall tree 70 to 100 ft. with grayish, deeply furrowed; softish bark when old, smoothish when young; branches coarse; leaves large, squarish, rounded at base, broad and concave at apex with a piece cut out of each upper corner, bright G. above, lighter below, smooth: flowers G. and R. without, Y. within, 3 inches broad. There are some fine specimens of this tree at the former residence of Elmer Baldwin dec. of Farm Ridge, $\frac{1}{4}$ mile N. W. of Farm Ridge church. Also near the residence of J. S. Clayton, Deer Park Tp. which blooms profusely.

Order 3. Anonaceae. Papaws;

ASIMINA. Papaw. A tree 20 to 40 ft. high with large, thin, oblong-obovate leaves and soft white wood.

A. triloba. Flowers dark P; petals 6 thick, stiff, 1 in. broad; fruit G. Y. 2 to 4 in long, 1 to $1\frac{1}{2}$ inches dia., containing several large flat seeds. Fruit eatable, ripe, soft. Illinois bottoms. Found in fruit 1894, 5 and 6 and in flower 95-96. In 96 bushes 3 ft. high were loaded with blossoms.

Order 4. Menispermaceae. Moonseeds.

MENISPERMUM, P. Slender vines with axillary clusters of small W. flowers followed by black berries.

M. Canadensis. Leaves stiff, dark G. smooth, 5-7 angled, sometimes lobed, with stem near middle. Along fences and banks of streams.

Order 5. Berberidaceae Barberries.

BERBERIS. Barberry. A prickly shrub with small obovate or oblong bristly serrate leaves in small rosettes or bunches.

B. Vulgaris. Flowers yellow; fruit an inch long, scarlet, very sour; M. Ju.; sometimes used for hedges.

CAULOPHYLLUM. Leaf triternate, a 2d leaf 2 ternate and on the stalk with it a bunch of small greenish, yellow flowers, followed by blue berries.

C. thalictroides. In rocky woods; M.

JEFFERSONIA. Twin leaf.

Leaves in pairs, 2 parted, and flowers on seapes.

J. diphyllum. W. May; Flowers large, 1 in. or more. But one locality in Co., in South Ottawa S of C. B. & Q. R. R.

PODOPHYLLUM, May apple, mandrake.

herb with two large, pellate, deeply lobed leaves and 1 flower. M.; Wood.

P. peltatum. W.; May; Mr. L. A. Williams of S. Ottawa, in 1895 showed us a flower of this plant of a beautiful pink color the only one we have seen or heard of.

NYMPHACEAE. Pond lilies.

a water plant with large, roundish, cordate leaves and large. white flower.

N. odorata. W. slightly scented. In Fox river and in a pond E. of Ott., S. of Ill. river.

NUPHAR. Frog lily, Yellow pond lily.

A water plant thriving in mud; leaves much like *Nymphae* but thicker and dull green.

N. advena. Y.; small, 2 in. broad.

Order 8. PAPERVERA CEAE. Poppies.

AGREMONE. Prickly poppy. A prickly plant having lobed and toothed light G. leaves spotted with W., stem and leaves armed with slender prickles.

A. Mexicana. Flowers Y.; Ju. on.

A. Mexicana var. alba. Flowers W. Escaped from gardens.

SANGUINARIA. Blood Root. Stemless plants with underground, creeping stems and a colored, watery juice.

S. Canadensis. Leaf one, radical, lobed with a single, orange colored, one flowered seape, blooming before the leaf is half grown. Flower W. 1 to $1\frac{1}{4}$ in. broad, lasting two or three days. Root stem red. Ap., 5 in.

ADLUMIA. P. Climbing Fumitory. A slender vine, sometimes found in cultivation.

A. cirrhosa. B. Leaves small, pinnate; leaflets lobed; flowers somewhat bell-shaped in dense clusters each $\frac{1}{2}$ inch long; P. W. or Pi. W., climbing by its leaf stalks. Ju. Oct.

Order 9. FUMARIA CEAE. Dicentra.

Plants with divided leaves, weak, pellucid stems and a watery juice.

DICENTRA. Leaves large, much divided, being cut into very narrow lobes, all radical, light G.

D. Cucullaria. Flowers W. somewhat resembling a large fly or a pair of somewhat inflated pantaloons; hence the common name, Dutchman's Breeches. Root a scaly bulb.

- D. *Canadensis*. Flowers smaller, spurs rounded, sweet scented, blooms later and is sometimes *Pi.* Root made up of a collection of small round *Pi.* tubers.

CORYDALIS. A low, decumbent plant with compound whitish green leaves, translucent watery stems and golden yellow, flowers in short racemes.

- C. *aurea*. Y. Apr. A very pretty plant.

Order 10. **CRUCIFERAE.** Mustards.

A large family of plants having 4 parted flowers. 6 stamens, in a few cases 4 or 2, 2 of them shorter than the other 4, fruit a pod longer than wide as in mustard radish, and called a silique, or wider than long and called a silicle, as in Shepherd's Purse, leaves, flowers and fruit often having strong peppery taste and smell.

DENTARIA. P. Pepper Root.

- D. *diphylla*. Leaves two about $\frac{1}{3}$ length of stem from ground, large, compound, cut into long, narrow segments. Flowers in a spreading cluster, W. to P., M. Woods.

CARDAMINE. Bitter Cress.

- C. *rhomboidea*. Leaves rhomboid, stem upright, 6 to 8 in. W., Ap. M.

- C. *rotundifolia*. Sends out long runners from stems; leaves rounded; flowers W., smaller than the preceding.

- C. *hirsuta*. Usually somewhat hairy.

ARABIS. Sicklepod.

- A. *Ludoviciana*. Leaves pinnately parted, flowers small W.

Jh. A. *lyrata*. Root leaves much divided, stem leaves scattered, narrow.

- A. *perfoliata*. Smooth, tall, 2 to 4 ft. stem leaves

oblong, entire.

- A. *Canadensis*. Leaves narrow, long, drooping; pods 3 to 3½ in. long, curved like a sickle. Bluffs.
- Jh. A. *levigata*. Stem leaves sessile, flowers small, Y. partly clasped; pods long, sessile and recurved, Y.
- A. *dentata*. Roughish, slender, 1 to 2 ft. high; leaves oblong, obtuse, very unequally toothed, those of stem numerous, somewhat clasping, of the root broader and petiolate.

DRABA. Whitlow grass.

- D. *Caroliniana*. Leaves obovate, mostly entire, flowers in small racemes on leafless stems; 1 to 5 in. high; sandy lands.

ALYSSUM *calycinum*. Small, hairy; leaves narrow, pale Y., broadest at outer end.

NASTURTIUM. Water cresses.

Small plants growing in damp places.

- N. *officinale*. W. In brooks and about springs, 4 in. Escaped from gardens.
- N. *palustre*. Leaves much divided, Y. Ju. to Sep.
- N. *Armoracia*. Horse raddish. *Armoracia rusticans* of Wood.

BARBAREA. A strong growing plant with deeply toothed leaves and small spikes of bright Y. flowers. M. Ju.; wet places.

Order 15. CAROPHYLLA CEAE. Pinks.

Plants with opposite leaves, stems with swollen joints and 5 to 10 parted flowers.

SAPONARIA. P. Bouncing Bet.

- S. *officinalis*. Stems in clusters, nearly erect; leaves lanceolate, acute, pale G.; flowers 1 in. dia., pale Pi., in clusters. About old buildings. River roadside S. Ottawa.

SILENA. P. *Campion.*

- S. *stellata*. Tall, 2 to 3 ft., leaves grayish G., in 4's corolla fringed; calyx inflated. M. Ju. Banks of streams.
- S. *Antirrhina*. Erect, rigid slender, with nearly erect branches; leaves narrow-oblong; flowers R. without, Pi. within; peduncles with sticky, brown gum around them which catches insects. Sandy lands.
- S. *Cucubalus*. Leaves opposite; petals 2 cleft; calyx much inflated; W., 1 ft. S. *inflata* of 5th. Ed.
- S. *nivea*. Leaves opposite, oblong, acute; petals cuneate, 2 cleft; flowers few, larger than *stellata*; 1 to 2 ft.; rare.
- S. *noctiflora*. Night flowering *campion*. Viscid-hairy, 1 to 3 ft.; lower leaves large, spatulate; flowers few, Pi., cult. grounds.

LYCHINS. A. *Cockle, Mullien pink.*

- L. *Githago*. Erect, branching clothed with long, soft, white hairs; flowers purple, 1 in. or more dia., cult. lands.

ARENARIA. *Sandwort. Petals 5 entire or slightly notched.*

- A. *Michauxii*. Usually diffusely spreading; leaves almost like bristles clustered in axils of stem; flowers small, W., J. Sandy lands. *Alsine stricta* of Wood.
- Jh. A. *lateriflora*. Erect, less branching than *Michauxii*; leaves oval, obtuse; flowers W., 6 to 10 in.

STELLARIA. *Chickweed. Starwort. Parts of flowers in 4's or 5's, petals 2 cleft or more.*

- Jh. S. *longifolia*. Erect, weak, rough angled, 8 to 18 in., leaves narrow, acute at both ends; flowers

on slender pedicels; M.; Ju. J. Grassy places.

CERASTIUM. A. or P. Mouse-ear, Chickwood. sepals 5 or 4; petals 2 cleft or entire. Flowers W.

C. viscosum. A. Hairy and clammy, nearly erect, 4 to 9 in.; leaves obovate; petals shorter than calyx. M. J. Grassy places. Rare.

C. vulgatum. P. clammy-hairy, spreading; leaves oblong; petals equal to calyx; M. J. Common.

C. nutans. A. very clammy-soft-hairy, erect, slender, grooved, spreading-branched, 6 to 20 in. leaves lancolate; petals larger than calyx; pods 3 times length of calyx, M. J. Moist lands.

C. oblongifolium. Erect or declined, soft-hairy; leaves oblong-lanceolate mostly obtuse; petals twice length of calyx. Ap. Ju. On rocky banks; quite showy.

C. arvense. P. In tufts, erect or not, slender, 4 to 8 in., leaves, narrow, obcordate more than twice length of calyx; M. J., Dry or rocky lands.

Order 16. PORTULACACEÆ. PURSLANES. Plants with fleshy stems and leaves, a watery juice and showy flowers.

PORTULACA. A. Prostrate, spreading, leafy.

P. oleraceae. Purslane. Stems thick; leaves obovate, flowers small, sessile, Y. cult. grounds.

TALINUM. Erect; peduncle hair like, stiff.

T. teretifolium. P. Leaves long, slender, cylindrical, clustered; peduncle branched; flowers Pi. Ju. Aug. Sandy lands near Ottawa.

CLAYTONIA. Roots tuberous; flowers racemed.

C. Virginica. Spring-beauty. Stem leaves two, long, narrow, thick, pale G., flowers bell shaped, Pi., $\frac{1}{4}$ in. broad; Ap. M.; Woods.

- C. *Caroliniana*. Flowers smaller and fewer; leaves broader.

Order 18. HYPERICACEAE St. JOHN'S WORTS
Herbs or shrubs with opposite, entire, dotted leaves. no stipules, petals and sepals 4 or 5 and stamens collected into 3 or more groups.

ASCYRUM. P. St. Peter's Wort. Sepals 4, two outer broad and leaflike; petals 4, oblique.

- A. *Crux Andreae*. St. Andrew's Cross. much branched, leaves narrow-oblong, narrowed to base, thin; pale G. Not common. Rich lands.

HYPERICUM. P. St. John's wort. Herbs and shrubs; sepals and petals each 5. stamens many in 3 to 6 groups. flowers Y.

- H. *adpressum*. Stem angular below, 2 edged, 1 to 2 ft.; leafy at base; leaves narrow, sessile, acutish, dotted; J. Aug. Wet places.

- H. *ellipticum*. Erect, 4 angled, 10 to 20 in. leaves, oblong narrowing toward base, thin; wet lands.

- H. *perforatum*. Branching, leaves narrow-oblong; flowers numerous in a cyme, deep Y.; spreads by runners. Ju. Sept.

- H. *maculatum*. Round; branches few; leaves oblong, some clasping; dotted with both clear and black dots; flowers small, crowded, pale Y. Damp places.

- H. *mutilum*. slender, branching; leaves narrow obtuse; flowers deep Y. in naked cymes.

- H. *medicagale*. Stem and branches thread-like stiff, erect 4 to 9 in; leaves scale like; flowers small orange; Ju. Oct. Sandy wet lands. Red-dick farm.

ELODES. P. Marsh St. John's wort. Stamens usually 9 in 3 sets.

- E. *campanulata*. Erect, 1 to 2 ft., leaves oblong,

obtuse, clasping. Flowers Fl. in clusters. J. Aug. Peat marshes.

Order 20. MALVACEÆ. MALLOWES.

Leaves alternate, stipulate, more or less lobed; flowers showy; stamens' filaments united; petals 5, sepals 5.

MALVA. P. calyx with a three leaved involuere.

M. rotundifolia. Prostrate; leaves round-cordate on long petioles, crenate, flowers small, W., cult. ground.

M. sylvestris. Erect, leafy, 2 to 3 feet, leaves 5 to 7 lobed; flowers P. and R. About old places. R.

M. crispa. A. Tall, erect, stout, very leafy, 3 to 6 feet; leaves rounded, angled and crisped; flowers small, W. Escaped from gardens. R.

M. moschota. P. Low, branching from ground; leaves 5 lobed and cleft, flowers pale Rs. $1\frac{1}{2}$ in across. Has the odor of musk. Escaped from gardens.

M. moschota alba has white flowers.

NAPAEÆA. P. Flowers of two kinds stam. and pist. on different plants.

N. dioica. P. Erect, little branching, roughish, 5 to 9 feet, leaves large, 9 to 11 parted, the lobes cut; flowers small, W. J. Ill. Valley.

MALVASTRUM. False Mallow.

M. angustum. A. Erect, 6 to 12 in., some hairy; leaves lance-oblong with fine, scattered, hard teeth; flowers small, Y, petals little longer than the sepals. Aug.

SIDA. Calyx without involucl, 5 cleft; petals entire, stipules 5 or more.

S. Spinosa. A. Erect, branched, soft-hairy, 10

to 20 in., leaves oblong, serrate, long petioled with often a tubercle at base of petiole; flowers small, Y. Along small streams.

ABUTITON. Indian Mallow, Velvet Weed, Old woman's night cap.

- A. avicennae. Erect, branching; leaves large, cordate, acuminate, soft-hairy; flowers small, $\frac{1}{2}$ in across, Y; seed pod bur like of 12 to 15 carpels, or pods united into one. Bark tough, used for making paper, 4 to 8 ft. Cult. lands.

HIBISCUS. Rose Mallow Calyx with an involucre of many bracteoles in a row. Flowers large and showy.

- H. Moschuetos. Erect, several stems from same root; lower leaves 3 lobed, upper lanceolate, downy below, smooth or nearly so above; flowers large, 3 to $3\frac{1}{2}$ in. across, Rs. Deer Park Tp., $\frac{3}{4}$ mile W. of Atwood's Cave.
- H. Militaris. Smooth, lower leaves ovate-cordate, 3 lobed, upper halberd form, middle lobe long, acute; flowers Rs. with a darker center, 3 to 4 in. Along Ill. river.
- H. Trionum. A. Erect or reclining with wide spreading, horizontal branches, very hairy; leaves 3 lobed, middle one much the longest; flower sulphur Y. $1\frac{1}{2}$ inch broad with a dark eye opening early and generally closing before noon. Becoming more common yearly.
- H. Syriacus. Shrub 5 to 15 feet with rather stiff, dark G. rather small, lobed leaves; flowers 3 to 4 inch broad, P. W. variegated. Scarcely hardy here.

Order. 21. TILIA CEAE. LINDENS or BASSWOOD.

Large trees with cordate leaves, small, fra-

grant, clustered flowers and fruit a woody, grayish berry.

TILIA. Trees with a tough, fibrous, inner bark and soft white wood.

T. America na. Leaves large, cordate, acuminate, serrate, green, smooth, branches coarse, often zigzag; flowers Y., small.

T. Europae. European Linden, sometimes cultivated.

Order 22. LINACEAE, Flaxes.

LINUM. Flax. Slender herbs with a tough bark, oblong, sessile, entire, alternate or opposite leaves without stipules.

L. Virginianum. Erect, branching; branches nearly erect, recurved; flowers Y, bell-shaped, lasting but a short time; 1 to 3 ft. Dry, open woods. Deer Park Tp. Along Vermillion bluffs.

L. usitatissimum. Flowers blue, along railways; Ju. J. 1½ to 2½ ft. The bark forms the flax of commerce.

Order 23. GERANIACEAE. GERANIUMS.

GERANIUM. P. Plants with 10 or 5 stamens; roundish, more or less lobed, hairy, leaves; forking stems, showy flowers and a long, slender, pointed seed pod.

G. maculatum. Cranesbill. Erect, leaves about 5 parted, the parts lobed; petals entire, Rs. ¾ in. long. M. Ju.; 1 to 2 feet. Woods.

G. Carolinianum. Some hairy, spreading, leaves cut into narrow segments; flowers small, Rs. Scattered; 6 to 12 in., M. Aug. Dry and waste lands.

Jh. FLOERKIA. A. False Mermaid. Small plants with small solitary flowers.

F. proserpinacoides. A small plant with leaves of

3 to 5 lanceolate leaflets, these entire or 2 to 3 cleft. Marshes, Ap. Ju. Taste peppery.

Order 25. ILICINEAE. HOLLIES.

I LEX. Black Alder, Winter berry.

- I. verticillata. Bark dark, leaves obovate or oval, acute, serrate; flowers small, W., in clusters; M. Ju. 3 to 7 ft. Fruit a scarlet berry.

Order 26. CELASTRACEAE. STAFF TREES.

CELASTRUS. A vine with alternate, serrate leaves.

- C. scandens. Leaves ovate-oblong; acute; flowers G. W. in clusters; fruit a 3 angled pod, which opening discloses the scarlet covering of the seeds; Ju. In thickets and by fences.

ENONYMUS. Spindle Tree, Wahoo. Stems square.

- E. atropurpureus. Leaves opposite, petioled, oval-oblong, acuminate; flowers dark P., 3 to 15 ft. Ju. Fruit smooth, 3 to 4 angled. Pi. from which when ripe project the crimson covered seeds.

- E. America nus. Low, erect, or straggling; pods warty. Banks of streams.

- E. America nus, var, obovatus. Trailing with rooting branches, leaves thin, obovate. Deer Park Tp. W. of Starved Rock.

Order 29. RHAMNACEAE. BUCKTHORNS.

RHAMNUS. calyx teeth petals and stamens 4.

- R. cathartica. A shrub; leaves ovate, serrate; small branches, thorny; flowers small, in clusters. Berries black. M. Ju. Bluffs.

CEANOTHUS. New Jersey Tea. Red Root. Shrubby plants. Petals hooded and on slender claws; flowers W. in umbel-like clusters forming a large leafless panicle.

- C. America nus. Leaves ovate, serrate, more or less hairy; 1 to 3 ft. Root dark, R. Ju. J. Borders of woods. Leaves said to have been used

for tea during the Revolution.

OXALIS. Sorrels. Herbs with a sour, watery juice, alternate or radical leaves, usually of 3 obcordate leaflets which close up at night.

O. violacea. Root a scaly bulb, flowers on branching scapes. V. 5 to 9 in. May, Ju. and without leaves in the fall.

O. corniculata. Branching, rough, with short, stiff hairs, leaves with roundish, stipules, spreads by runners, flowers Y, Ju.; R.

O. corniculata, var. stricta. erect, hairy, very branching, M. Sept. Woods and fields.

IMPA TIENS. Jewel Weed. Touch-me-not.

Erect, smooth, branching plants, with round, translucent stems, small ovate, crenate, long-petioled, light G. leaves, a spurred corolla and growing in springy places.

I. pallida. Flowers Y. Greener than fulva.

I. fulva. Flowers spotted with red.

Order 24. **RUTACEAE.** RUES.

XANTHOXYLUM. P. Prickly Ash. A prickly shrub with pinnate leaves, small yellowish flowers scattered along the branches; fruit brownish black, peppery tasted berries.

X. Americanum. Leaves sessile in clusters, each of 2 to 4 pairs of leaflets and an odd one, flowers in axillary clusters. M. 8 to 10 ft. Rocky hills and woods.

PTELEA. Hop Tree. Shrubby Trefoil. Wafer Ash.

P. trifoliata. Leaves trifoliate, ovate, acuminate; flowers W. small, fruit with a border; in clusters and looking like wafers.

AILANTHUS. Glandulosus. Tree of Heaven. Leaves pinnate, of many pairs of leaflets, coarsely branched, flowers greenish with a strong un-

pleasant smell. Does not stand our climate well. Planted for shade.

Order 28 VITACEAE. GRAPES.

VITIS. Grape. Plants climbing by woody tendrils.

V. *aestivalis*. Summer Grape. Leaves woolly and rusty when young, entire or 3 to 5 lobed, berries black with a bloom. M. Ju., ripe Sept.

V. *cordifolia*. Frost Grape, leaves entire or slightly 3 lobed, cordate with a deep acute sinus, acuminate coarsely and sharply toothed, berries small, black, ripening after frosts.

AMPELOPSIS. Virginia Creeper. Five Finger.

A. *quinquefolia*. A woody vine climbing tall trees by both rootlets and tendrils, leaves 3 to 7, generally 5 lobed, flowers G. Y. Berries Bl. Leaves become crimson in autumn. This plant is not poisonous and is often planted to run over houses and walls, for which it is well adapted.

Order 29. SAPINDACEAE. Maples. Soapberries.

AESCULUS. Horse chestnut. Buckeye. Trees.

Æ. *glabra*. Leaves digitate of 5 oblong, acuminate, serrate, leaflets; flowers Y. W., not showy, fruit a large, 1 in. dia. nut-like, nearly smooth pod containing 1 to 4 smooth, brown seeds. Val. Big Vermillion, near Oglesby and W.

A CER. Maple. Trees or shrubs with large palmately lobed leaves, small flowers and winged seeds.

A. *saccharinum*. Sugar Maple. Hard Maple. Flowers greenish yellow appearing with the leaves; branches making a nearly right angle with trunks. Ap. M. 70 to 80 ft. Wood hard and handsomely grained.

A. *dasycarpum*. Leaves silvery W. below. Flowers G. W.

A. *rubrum*. Red Swamp or Soft Maple. Flowers

C. or Y., appearing before the leaves; 40 to 70 ft. Wet lands, wood white, soft branches, making an acute angle with trunk, and often splitting off.

NEGUNDO. Box Elder. Ash-leaved Maple.

N. aceroides. Leaves pinnate, of 5 to 7 ovate, acute leaflets, bright G. above. Branches crooked, tree wanting the symmetry and grace of the maple. Wood of little value. A rapid grower and good shade tree.

STAPHYLEA. Bladder Nut. Fruit a 3 to 4 angled sac containing 3 or 4 hard, grayish round seeds, the size of very small peas.

S. trifolia. Leaves of 3 ovate, acute, smooth leaflets; flowers W., delicate; M. 8 to 15 ft. Bark beautifully mottled. A handsome shrub. Bluffs.

Order 30. ANACARDA CEAE. SUMACS.

Leaves compound; flowers G. W. clustered.

RHUS. Sumac. Flowers in a dense, terminal panicle, fruit a crimson, hairy, sour berry, not poisonous.

R. typhina. Staghorn Sumac. Branches and leaf-stalks densely hairy; leaves of 11 to 31 oblong-lanceolate, acute, serrate, pale beneath leaflets; 10 to 30 ft. Ju. Hillsides. Wood a fine Or. color.

R. glabra. Smooth; leaves whitened beneath; 2 to 12 ft. Ju. J. Borders of woods.

R. venneata. Poison sumac, smooth; leaflets 7 to 13 obovate-oblong entire; flowers in small axillary, G. Y. clusters; berries globular; grayish. Very poisonous; 6 to 15 ft. Low grounds.

R. toxicodendron. A woody vine climbing by rootlets on trees, fence posts and rocks. Leaves of 3 rhombic-ovate, acute, entire or notched leaflets, dark or light G, stiff or drooping. The

leaf of three leaflets and the stem beset, with black, short, hair-like roots will enable any one to detect this dangerous plant. Berries Y. W. It causes small watery blisters to rise on the skin and these breaking, the water contained causes others to rise and thus the trouble spreads, hard rough scabs forming on the sores, which become more and more troublesome being accompanied by an intolerable itching. Sugar of lead dissolved in water and used as a wash is a very good remedy. The sooner it is applied the better.

Order 31. POLY GALACEAE. Polygala. Milk-worts.

POLYGALA. Small plants with leafy, more or less branching stems, small leaves and small, irregular flowers in compact head.

P. polygama. B. Stems smooth, many from root, very leafy, 6 to 9 in., leaves narrow-oblong, obtuse, mucronate; flowers P.; Ju. J. Fields and pastures.

P. Senega. Leaves alternate, lanceolate; flowers W., M. Ju., 6 to 10 in.

P. sanguinea. A. Leaves oblong-linear, heads dense flowered, bright Rs. P. Moist sandy grounds.

P. cruciata. Stems angular, almost winged; leaves in 4's, narrow; head short and thick, 3 to 10 in. high. Reddick farm.

P. verticillata. Much branched; stem leaves in whorls, those of branches scattered; lineals, acute, flowers small, G. W. or P. tinged; 6 to 10 in. Dry lands.

Order 32. LEGUMINOSAE. Peas.

Flowers of 5 unequal petals, the upper called

the vexillum or banner, the largest; the lower two united by their edges forming a boat-shaped petal or keel—carina; and the two side petals or wings spreading; stamens 10, seldom 5, generally 9 united into a tube open on one side, the 10th separate; fruit a pod, leaves usually compound, entire and with stipules. In sub-order *Caesalpinia*e the corolla is more nearly regular; in sub-order *Mimosa*e the corolla is regular.

BAPTISIA. P. False Indigo. Branching herbs with flowers 1 in. long in large clusters, panicles, or in long, naked spikes; pods inflated.

B. *leucphaea*. Hairy, 1 ft. branched; leaves nearly sessile, leaflets narrow-obovate; flowers in large clusters. pale Y. M. Dry pastures.

B. *leucantha*. Smooth, tall, bluish green, 2½ to 5 feet, leaves narrow-cuneate; flowers W. on a long leafless stem forming a raceme; Ju. J. Rich damp prairies.

TRIFOLIUM. Clover. Treefoil. Leaves palmately trifoliate.

T. *partense*. P. Red Clover.

T. *reflexum*. A. or P. Leaflets obovate-oblong finely toothed; standard of flowers red, rest whitish; head reflexed in fruit. Borders of woods. R.

T. *repens*. P. White Clover.

T. *hybridum*. Alsike Clover. Like *repens* but more erect, not rooting at joints: flowers rose-tinted. Marseilles. Jh. Becoming common.

T. *procumbens*. Hop Clover; yellow clover. Creeping, slender; leaves small; leaflets wedge-obovate, notched at end; flowers. Y. C. B. & Q. tracks N. part of Ottawa, 1882, not seen since. At Marseilles. Rock Island tracks. Jh.

MELILOTUS. B. Melilot. Sweet Clover. Flowers in long spike-like racemes. Erect, branching plants.

M. officinalis. Leaves pinnate, 3 foliate, the leaflets small, obovate, obtuse; flowers Y. 2 to 4 ft. S. Ottawa and other places.

M. alba. Leaflets truncate, flowers W. Both of these plants have a fragrant smell. The last is much too common.

MEDICAGO. Medick, Pods curled forming a close head.

M. sativa. P. Flowers P. Leaves and stem much like Melilotus. C. B. & Q. R. R. W. of Porter's shop.

B. M. lupulina. A. Nonesuch. Black Medick. Pro-cumbent, downy; leaflets toothed at apex. Flowers Y.

PSORALEA. P. Erect, branching plants or roughened especially on the calyx and pods with glandular dots; leaves 3 to 5 foliate.

P. Onobrychis. Nearly 3 to 5 ft.; leaves pinnate, leaflets lanceolate, acuminate; flowers P., pods wrinkled. Damp, rich lands.

P. tenuiflora, florabunda of 5th Ed. Leaves palmately 3 to 5 foliate; hoary-downy, small, linear or oblong; plant very branching rather slender and rigid; flowers P., J. Sept. Dry places.

AMORPHA. P. False Indigo. Shrubs with odd, pinnate leaves; flowers Vi. P., in spikes.

A. canescens. Covered with a white down, 1 to 3 feet; very leafy, leaflets 15 to 20 pairs small, spikes at summit. Some people imagine that this plant indicates the presence of lead, hence called Lead Plant. Dry lands.

A. fruticosa. Taller, nearly smooth; leaflets 8 to

12 pairs. Banks of streams.

PETALOSTEMON. P. Prairie Clover. Flowers in dense, terminal heads; stems very leafy.

P. *violaceus*. Nearly smooth, leaflets 5, very narrow; flowers Vi, P., J. 12 to 20 in. Dry fields.

P. *candidus*. Smooth; leaflets 7 to 9, lanceolate; flowers W. 12 to 20 in. with the former.

B. P. *foliosus*. Very leafy; leaflets 15 to 29, linear-oblong; flowers Rs. Found in 1882 by Prof. Boltwood on the McPherson place S side the road opposite the Reddick farm.

TEPHROSIA. Perennial herbs whitish with long, silky hairs.

T. *Virginiana*. Goat's Rue. Catgut. Leafy to top; leaflets 17 to 29, linear-oblong, small; flowers large, showy in a cluster, W. tinged with P. Jh. J.; 1 to 2 ft. About Lover's Leap, Deer Park Tp.

ROBINIA. Locust Tree. Trees or shrubs armed with prickles and having odd-pinnate leaves and flowers in axillary racemes.

R. *Pseudacacia*. Flowers W., fragrant. Timber valuable. M.

R. *viscosa*. Branchlets and petioles sticky; flowers P. Ju.

ASTRAGALUS. P. Milk-vetch. Leaves odd-pinnate; flowers W. in dense, thick spikes.

A. *Plattensis*. Reclining; leaflets oblong; in a short spike Y. W. often tipped with P. Ju. Gravelly lands.

A. *Canadensis*. Erect, tall, 2 to 3½ ft.; leaflets 21 to 27, oblong; flowers G. W. in long close spikes; Ju. Dry lands.

DESMODIUM. P. Tick seed. Tick Trefoil. Pods deeply toothed, covered with hooked bristles by

which they adhere to whatever touches them.

- D. nudiflorum. Leaves pinnately 3 foliate, crowded at top of a flowerless stem; flowers on a long slender leafless stem, 1½ to 2½ ft. long, Pi., J.
 - D. acuminatum. Leaves crowded at top of stem from which rises a long naked peduncle bearing a raceme of P. flowers; Ju. Jl. Woods.
 - D. rotundifolium. Prostrate, covered with soft hairs; leaflets nearly round; flowers scattered, P. 12 to 20 in., Ju. J. Woods.
 - D. canescens. Erect, channeled, hairy branching leaflets long-ovate, obtuse, whitish or netted below; pods 4 to 7 joints; flowers in dense spikes, larger than in other species, G. P.; 3 to 4 ft. J. Aug. Borders of woods.
 - D. cuspidatum. Very smooth except the panicle; leaflets oblong-oval, acuminate, thinish; flowers rather scattered and panicle spreading. P. 2½ to 4 ft. Aug. Open woods.
- LESPEDEZA. P. Bush Clover. Leaves pinnately 3 foliate, without stipules. Flowers P. or W.
- L. procumbens. Slender, prostrate, hairy, except upper surface of leaves; leaflets small ½ in., oval; flowers P. Dry rocky places.
 - L. violacea. Upright or spreading, slender branching, leaflets thin, broad-oval; flowers few, Vi.
 - L. capitata. Rigid, wooly; petioles short; leaflets oblong, thickish and nettled; flowers in dense heads; W. with a P. spot. Dry soils.
- Jh. L. angustifolia. Silky; leaflets linear; heads on distinct peduncles.
- VICIA. Vetch. Tare. Herbs climbing by tendrils at the end of the pinnate leaf.
- V. Americana. Smooth; leaflets 10 to 14; elliptical, obtuse, veiny; flowers 4 to 8 on a peduncle; P., Ju. Moist fields.

LATHYRUS. P. Everlasting Pea.

L. ochroleucus. Wild Pea. Stem slender; leaves of 3 to 4 pairs of ovate or oval light G., entire thin leaflets. Y. W., 1 to 3 ft.; peduncles 7 to 16 flowered.

L. palustris. Marsh Pea, Wild Sweet Pea. Stem slender, angled, angles more or less winged; leaves of 2 to 4 pairs of narrowly-oblong, mucronate pointed, entire leaflets; peduncles 3 to 5 flowered; flowers bluish P. A beautiful vine 1 to 3 ft. Middle Ju. on.

APIOS. P. Ground Nut. Slender vine with milky juice.

A. tuberosa. Leaves of 5 to 7 ovate, lanceolate leaflets; flower chocolate Br. in short, dense and often branching racemes.; Ju. Aug. It springs from a tuber.

PHASEOLUS. P. Bean.

P. perensis. Wild Bean. Stem long, slender, twining. Leaves 3 foliate, leaflets roundish, ovate, short pointed; pods curved, drooping; flowers small, P.

P. diversifolius. A. Prostrate, slender, branching; leaflets ovate 3 lobed or oblong and entire, flowers G. W. tinged with R. Pod straight, brown, opening with a spring when ripe.

P. pauciflorus. A. Many stems from same root, twining. slender pubescent; leaves oblong to linear; flowers P.: pod 1 in., downy.

CERCIS. P. Small trees.

C. Canadensis. Red Bud. Judas Tree. Bark roughish, brown, branches crooked, straggling, leaves cordate, acuminate, thin. smooth, light green, (when young P. G.) $1\frac{1}{2}$ to $2\frac{1}{2}$ in. wide, flowers in small clusters, R. P. numerous, ap-

pearing when the leaves are small and succeeded by thin flat pods $1\frac{1}{2}$ in. long; 12 to 25 ft. M.

CASSIA. P. Senna. Erect, rigid, leafy.

C. Marilandica. Stem, tall, furrowed, leafy; leaves of 6 to 9 pairs of oblong, obtuse, smooth leaflets, flowers in racemes Y. $\frac{1}{2}$ in. long, pods flat, at first hairy, becoming smooth.

C. Chamaecrista. Stem round, smooth; leaves of 10 to 15 pairs of narrow, oblong, oblique, leaflets, sensitive folding when touched; flowers Y. with violet brown eye, 1 in. dia.; pods $1\frac{1}{2}$ in. long. 6 to 18 in. J. Aug. Prairie.

GYMNOCLADUS. A tree with rough, brownish bark.

G. Canadensis. Coffee Nut. Branches few straight; leaves twice pinnate, large 35x35 in. leaflets ovate; flowers whitish in terminal racemes; pod $1\frac{1}{2}$ in. wide 3 to 4 in. long, thick, containing 3 or 4 hard, grayish seeds one-half in. dia. 30 to 60 ft., 4 to 15 in. dia. Ill. bottoms.

GLEDITSCHIA. Honey Locust; a large very thorny tree.

G. triacantha. Smooth, dark bark, much branched, and once or twice compound small clusters of small G. Y. flower, followed by long, somewhat curved, smooth, flat pods 50 to 70 ft. 10 to 30 in. dia. Pods 6 to 10 in. Ju:

DESMANTHUS. P. Herb erect, many stems from one root, grooved.

D. brachylobus. Leaves twice pinnate, finely divided, folding up if touched; flowers white in close terminal heads, pods spirally twisted, 2 or 3 ft., J. Aug. Sands and gravel banks along rivers.

Order 33. ROSACEAE. Roses.

Trees, shrubs or herbs with regular flowers numerous stamens inserted on the calyx, 1 to 5 pistils and leaves with stipules.

PRUNUS. Plum. Cherry. Trees of moderate size often thorny with white flowers in cymes and a fruit enclosing a flattened smoothish stone.

P. Americana. Thorny, 8 to 20 ft.; leaves ovate or obovate, acute, doubly serrate, very veiny, smooth; fruit roundish, Y. Or. or R.; M. Banks of streams.

P. Pennsylvanica. Wild Red Cherry, a small tree, Leaves oblong, acuminate, finely serrate, shining green; W., M. Fruit round, red, small, on long pedicels. 15 to 25 ft. A handsome, symmetrical tree.

P. Virginiana. Choke Cherry. Leaves oval, oblong or obovate, abruptly pointed, sharply, often doubly serrate, thin; flowers with roundish petals in short. close racemes, W. Fruit red turning to dark, crimson; until fully ripe having a very puckery taste. 6 to 8 ft.; bark grayish. River banks.

P. serotina. Wild Cherry. Wild Black Cherry. A large fine tree. Leaves oblong, lanceolate, taper pointed, serrate, thick, glossy above; flowers small in long racemes, petals obovate. W., M., fruit Bl., Aug., 50 to 70 ft. Wood fine grained, valuable.

SPIRAEA. P. Meadow Sweet. Spiraea.

S. opulifolia. (*Neillia opulifolia*.) A many stemmed shrub with recurved, grayish branches, round, somewhat 3 lobed, heart shaped leaves; flowers in corymbs. W., pods short, Old bark loose in thin layers on stem. 4 to 10 ft.

S. salicifolia. Common Meadow Sweet. Stem erect, hard, nearly smooth, leafy. Leaves wedge-shaped, serrate. Flowers small, W. or Pi. W., crowded, in a panicle. 2½ to 3 ft.

S. lobata. Queen of the Meadows. Stems die down to ground each year. Erect, smooth. Leaves odd pinnate, the terminal one much the largest, 9 parted; lobes cut and strongly toothed. Flowers in a large panicle on a long naked peduncle; 2½ ft., Ju. J. A very handsome plant.

Wet ground.

Stem Aruncus. Erect, tall, 2½ to 4 ft., smooth; leaves large, ternately compound; leaflets ovate, acuminate, coarsely serrate; flowers in long, slender spikes, small, W., Ju. Bluffs.

GILLENIA. Indian Physic. Bowman's Root. Erect, branched, leaves 3 foliate, leaflets lobed doubly serrate, acute, thin, veins prominent.

G. trifoliata. P. Upper leaves much smaller than lower; stipules narrow; petals long, narrow; Pi.; flower distant 2 ft. In open woods at top of Big Vermillion Bluffs.

RUBUS. Black and Raspberries. Prickly stemmed shrubs producing blossoms and fruit on stems of the last years growth.

R. triflorus. Dwarf Raspberry. Trailing, 6 to 12 in. leaves of 3 to 5 ovate, doubly serrate leaflets; peduncles 1 to 3 flowered. Ju. Bluffs.

R. strigosus. Wild Red Raspberry. Stems beset with reddish, stiff, straight prickles, Y. Br. Leaves of 3 to 5 ovate, acuminate, serrate, leaflets whitish, downy beneath; fruits red. 2 to 4 ft. M.

R. occidentalis. Black Raspberry. Thimbleberry.

R. villosus. Common High Blackberry. 2 to 6 ft.

M. Ju.

R. *Canadensis*. Low Blackberry, Dewberry, trailing; M. Dry fields.

R. *hispidus*. Running Swamp Blackberry. Stems slender, prostrate, very prickly; flowers small; fruit of a few grains. Wet woods and swampy places.

GEUM. P. *Avens*. Erect, leafy, branched; leaves pinnate diminishing upward, end leaflet much the largest. Fruit covered with hooked bristles by which they adhere to one's clothes.

G. *album*. Leaves next ground roundish, next pinnate of 3 to 5 leaflets, upper 3-parted or merely toothed; all toothed, soft-hairy; flowers W., fruit $\frac{1}{2}$ in. dia. M. Aug. $2\frac{1}{2}$ ft. Borders of Woods.

G. *Virginianum*. Root and lower leaves pinnate of 5 to 9 smallish, toothed, hairy, dark green leaflets or roundish, cordate 3 to 5 lobed; flowers small, Y.; fruit small, one-sixth in. M. Ju. $1\frac{1}{2}$ to 3 ft. Thickets.

FRAGARIA. Strawberry. Leaves all radical, of 3 obovate, serrate leaflets; scape many flowered; fruit a scarlet berry.

F. *Virginiana*. Leaves erect, dark G., stiff, hairs of scape silky.

F. *Virginiana*, var. *Illinoensis*. A larger, stronger plant, hairs spreading.

F. *vesca*. Leaves thin, both faces strongly veined.

POTENTILLA. Cinque Foil, Five Finger. Herbs or shrubs. The flowers Y. otherwise like those of the strawberry.

P. *arguta*. P. Erect, grayish, stout, leaves pinnate, of 7 to 9 ovate, deeply serrate leaflets, downy beneath.

- P. *Norvegiaca*. Stout, erect, hairy, $\frac{1}{2}$ to 2 ft.; leaves ternate, leaflets obovate.
- P. *supina*. Decumbent at base or erect, stout, leafy; leaves pinnate, 5 to 11 obovate leaflets
P. *paradoxa* of 5th Ed.
- P. *Canadensis*. Five Finger. Slender, prostrate hairy; leaves apparently of 5 obovate, sessile leaflets.
- POTERIUM. (*Sanguisorba* of Wood) Burnet. Erect, tall; leaves pinnate, smooth, large; flowers G. W., in long spikes.
- P. *Canadensis*. P. Branched toward top; 2 to 6 ft. Wet lands; Reddick farm.
- ROSA. P. Roses. Spiny or prickly shrubs with odd-pinnate leaves, having stipules united to petiole; calyx urn shaped, becoming fleshy in fruit.
- W. R. *setigera*. Climbing Rose. Prairie Rose. Michigan Rose. Climbing, armed with stout, nearly straight, scattered prickles. Ju.
- R. *blanda*. Early Wild Rose. Nearly smooth leaves pale G., slightly downy beneath; leaflets 5 to 7; 2 to 3 ft.
- R. *Carolina*. Swamp Rose. Armed with stout, hooked prickles; leaves of 5 to 9 elliptical leaflets, dull G. above brighter below; 4 to 7 ft. Ju. Sept. Damp lands.
- R. *lucida*. Dwarf Wild Rose. Leaves shining above; leaflets generally 7; 1 to 6 ft. Damp places.
- R. *rubiginosa*. Sweet briar. Eglantine. Armed with strong recurved prickles and many smaller ones; Stems stout, leaves thickish, 5 to 7 leaflets, broad, oval, rusty beneath; fruit large, scarlet. About old places.

PYRUS. Pear, Apple, Trees of medium size.

P. coronaria. Crab Apple.

P. arbutifolia. Choke Berry. Fruit R. or P. Looks like a wild cherry but has a very puckery taste; flowers W.; M. Ju. 2 to 7 ft. Rocky banks of streams.

P. 'Americana. Mountain Ash. Leaves pinnate of 9 to 15 lanceolate sharply serrate leaflets; flowers in clusters, small, W.; fruit red berries in a large cluster.

CRATAEGUS. Hawthorn. White Thorn. Thorny Shrubs or small trees.

C. cocinea. Scarlet Fruited Thorn. Leaves thin roundish ovate, sharply toothed, sometimes lobed, on slender petioles; flowers W.. M., 15 to 25ft. Fruit bright red. Along streams.

C. tomentosa. Black Thorn. Branches gray with some stout gray thorns; leaves large, woolly beneath ovate, toothed narrowed to base; flowers small; fruit red, flowers later than coccinea.

C. punctata. Branches horizontal, leaves obovate narrowed to base, upper end toothed, dull; fruit large, R. or Y.

C. crugalli. Cockspur Thorn, Thorns long, slender, leaves wedge-obovate, thick, shining above, dark G., serrate above middle; fruit dull red, 10 to 15 ft. Along streams.

AMELANCHIER. June Berry. Shad Flower. Service Berry.

A. Canadensis. A small straggling tree 8 to 25 ft., producing an abundance of W. flowers in early spring before the leaves appear; leaves ovate-oblong, acute, finely serrate; fruit a red berry. Bark smooth, light gray. Along bluffs.

Order 34. CALYCANTHA CEAE. Calycanths.

CALYCANTHUS. Shrubs with aromatic leaves and bark and P. flowers at ends of branches; 2½ to 7 ft.

C. floridus. Leaves oval, soft downy below.

C. laevigatus. Leaves oblong, thin, green, smooth.

C. glaucus. Leaves oblong-ovate, acuminate, white below. All are found in gardens.

Order 35. **SAXIFRAGACEAE.** Saxifrages. Herbs and shrubs.

SAXIFRAGA. P. Saxifrage. Root leaves usually clustered: those of stem alternate, all thick.

S. Virginiensis. Early Saxifrage. Leaves obovate narrowed into a broad petiole, crenate toothed, downy; scape nearly leafless; flowers in a broad, flat cluster, W. or P. W.; 4 to 12 in. Ap. M. On rocks and dry hills.

S. Pennsylvanica. Leaves oblanceolate, slightly toothed, 4 to 8 in. long and narrowing into a short broad petiole. Stem 1 to 2 ft. hollow, hairy, sticky; flowers in a large cluster forming a panicle. Y. G.; M., Bogs.

MITELLA. Miller Wort. Bishop's Cap. Hairy, leaves cordate, somewhat 3 to 5 lobed in a cluster.

M. diphylla. Stems slender with two cordate, acuminate opposite leaves in middle and a spike of delicate W. flowers with fringed petals; 6 to 10 in. M. Woods.

HEUCHERA. P. Alumroot. Leaves in a cluster round-cordate.

H. Americana. Stems 2 to 3 ft., hairy; flowers Y. M. Ju.

CHRYSOPLENIUM. Water Carpet. Golden Saxifrage.

W. C. Americanum. Leaves opposite roundish, G.

Y., stamens 8; anthers Or.; Stems square. In springs and streams.

PARNASSIA, P. Grass of Parnassus. Leaves from root, smooth; flowers solitary, each stem bearing one clasping leaf.

P. palustis. Scapes 5 to 10 in., leaves cordate thick shining above, flowers W. 1 in. broad. A plant of wet springy lands, Farm Ridge, S. E. corner of N. E. $\frac{1}{4}$ of Sec. 18 near A. W. Griffith's place. The place having been drained it has disappeared. About Englewood, Cook Co. Also near Morrison, Whiteside Co.

HYDRANGEA. Shrubs with opposite petiolate, leaves, no stipules, and flowers in large cymes.

H. asborescens. Smooth, branching 2 to 5 ft. flowers G. W. outer ones large, showy, sterile; Ju. Aug. Rocky bluffs.

RIBES. Currant. Gooseberry. Fruit a berry, leaves palmately lobed.

R. Cynosbati, Wild gooseberry. Fruit covered with prickles; leaves round-cordate, 3 to 5 lobed; flowers G. Y.

Jh. R. rotundifolium. Stems with whitish bark, often prickly; fruit smooth; flowers G. Y.

R. oxyacanthoides. R. hirtellum of 5th Ed. Peduncles very short; fruit usually smooth, spines if present whitish; flowers G. Y. tinged P.

R. floridum. Wild Black Currant. Leaves somewhat cordate, sharply 3 to 5 lobed, doubly serrate; flowers yellow; fruit black, smooth.

Order 36. CRASSULA CEAE. House Leaks. Orpines. Except Penthorum plants with thick fleshy leaves, the flowers symmetrical; pistils, petals and sepals same number, 3 to 20 and stamens the same or twice as many.

PENTHORUM. P. Ditch Stone Crop. Erect with, scattered leaves and Y. G. flowers.

P. sedoides. Leaves lanceolate, acute both ends; 10 to 15 in. In ditches and ponds.

SEDUM. P. Stone Crop. Orpine. Leaves thick. juicy; petals 4 to 5; stamens 8 to 10.

S. ternatum. Prostrate; leaves in 3's obovate-cuneate; flowers in a 3 rowed cyme, W. Wet clayey banks; S. Ottawa 1 mile E. of Ill. river bridge on bluff side.

SEMPERVITUM. Leaves thick, fleshy. fringed, sometimes blooms; stem 1 to 1½ ft., flowers red.

S. tectorum. Spreads by offsets, sometimes used as a border for flower beds and for walks.

S. Telephium. Liveforever. Erect, leafy, smooth; leaves sessile, ovate, obtuse, serrate; flowers R. 18 to 30 in. Aug. Sometimes found by roadside.

Order 38. HAMAMELACEAE. Witch Hazel.

Stout shrubs or small, crooked, smooth barked trees.

HAMAMELIS. Witch Hazel. Small tree flowering in autumn—Sept. and on.

H. Virginiana. Leaves obovate or oval, crenate, obliquely cordate; thick on short petioles; flowers Y. in axils of leaves. Fruit a 2 celled nutlet; 10 to 23 ft. Ill. Valley.

Order 39. HALORAGEAE, Water Milfoils.

Aquatic or marsh plants. □

MYRIOPHYLLUM. Water Milfoil. Parts of the flowers in 4's. Leaves often whorled, flowers in axils of upper leaves.

M. verticillatum. Leaves in thread-like lobes except those near the flowers which are deeply toothed. In ponds.

M. scabratum. rather slender; leaves pinnate, floral linear, toothed. Shallow water.

Order 40. MELASOMACEAE. Melastomes.

Leaves opposite 3 to 7 ribbed.

RHEXIA. P. Deer Grass. Meadow beauty. Petals 4, large, oblique; stamens 8.

R. Virginica. Stem square, leaves oval-lanceolate, sessile, acute, calyx and pedicels hairy; flowers P. with Y. anthers. Reddick farm. A fine plant.

Order 41. LYTHRACEAE. Loose strifes.

Herbs; leaves mostly opposite, entire; calyx enclosing ovary but free from it. Branches usually 4 sided.

DIDIPLIS. Water Purslane. Leaves opposite, linear growing under water or in the mud. Flowers small, greenish.

D. linearis. Immersed leaves, long thin, sessile; others shorter and contracted at base.

LYTHRUM. Loose Strife. Leaves mostly sessile, flowers generally P.

L. alatum. P. Slender, 2 to 3 ft., branches angular, leaves small, oblong-ovate, acute; petals 5 to 7, deep P. Wet lands.

DECODON. P. Shrubby plants with opposite or whorled leaves in axillary clusters.

D. verticillatus. Stems 4 sided, recurved; leaves pale G., lanceolate, nearly sessile. Flowers small, pale P. Ju. Sept. Swamps.

CUPHEA. A. Plants covered with sticky, brown hairs.

C. viscosissima. Slender, branching; leaves ovate-lanceolate, P. S. Ottawa and at foot of bluff W. of Covell Creek.

Order 42. ONAGRACEAE. Evening Primroses. Herbs with perfect and symmetrical flowers,

the calyx tube cohering with the ovary which is 2 to 4 celled

LUDWIGIA. P. Flowers axillary; petals 4 or 0; stamens 4. Blooms through summer and fall; flowers Y. Wet lands.

L. alternifolia. Smooth, erect, $2\frac{1}{2}$ to 3 ft., branched; leaves lanceolate, acute at both ends; capsule squarish with winged angles.

Jh. L. polycarpa. Leaves narrowly linear; capsule somewhat top-shaped, longer than calyx lobes.

L. palustris. Water Purselane. Leaves opposite, ovate or oval, tapering into a slender petiole. Ditches.

EPILOBIUM. Willow Herb. Leaves nearly sessile; stem more or less tinged with purple as are the leaves; branches slender, fruit long, slim and angled. Wet lands.

E. strictum. Erect, $2\frac{1}{2}$ ft., covered with glandular, whitish hairs; petals notched. E. Molle 5th Ed.

E. angustifolium. Erect, tall, 4 to 7 ft., leaves scattered, lanceolate, nearly entire; flowers large P. petals entire.

Jh. E. colosatum. Somewhat soft-hairy, very branching; leaves purple veined, flowers Pi. 1 to 3 ft.

E. palustre. Slender, 1 ft. or less, more or less branched; covered with fine hairs; leaves erect or nearly so, sessile, narrow lanceolate; margins revolute.

OENOTHERA. Evening Primrose. Calyx lobes 4, reflexed; petals 4, stamens 8, leaves alternate, flowers Y. or W.

O. biennis. Stout, erect, 1 to 5 ft., hairy.

O. rhombipetala. Somewhat woolly; petals broad-ovate, acute.

Jh. O. sinuata. More or less decumbent. 1 ft. rough,

hairy; leaves oblong, toothed more or less. Var.

- O. *fruticosa*. Erect, 1 to 3 ft. more or less woolly; leaves oblong, toothed, capsule ribbed and winged.
- O. ? A species with reclining stem, hairy, oval, acute leaves and flowers few; $1\frac{1}{2}$ broad, occurs very sparingly in damp meadows.

GAURA. Leaves alternate, sessile.

- G. *biennis*. Soft hairy, 3 to 8 ft. with spreading branches; leaves long, narrow, some toothed flowers scattered on long, naked branches; Pi. rather small, soon withering. Dry lands.
- W. G. *filipes*. Nearly smooth, slender, 2 to 4 ft., leaves linear, toothed.

CIRCAEAE. Enchanter's Nightshade. Leaves opposite, thin, on slender petioles; flowers small, white, in long racemes.

- C. *Lutetiana*. Erect, 1 to 2 ft.; leaves ovate, slightly toothed; fruit bristly-hairy. Woods.
- B. C. *alpina*. Smooth, low, 3 to 8 in.; fruit with soft hairs.

Order 45. CURCUBITACEAE. Gourds.

SICYOS. A. Bur Cucumber. A vine with 3 forked tendrils. Flowers of 2 kinds.

- S. *angulatus*. Leaves cordate, sharply 5 angled, bristly-clammy-hairy. River banks.

ECHINOCYSTIS. A. Prickly Cucumber. Wild Balsam Apple. Nearly smooth; tendrils 3 forked; leaves thin.

- E. *lobata*. Leaves deeply and sharply 5 lobed; fruit bristly, oval, 2 in. long; seeds brown. The staminate flowers of this genus and of *Sicyos* are Y, W. or W. and in large showy clusters.

Order 46. CACTACEAE. Cactuses.

Plants with fleshy, often prostrate stems,

usually leafless; with showy and often large and fragrant flowers.

OPUNTIA. P. Prickly Pear. Indian Fig. Stem made up of flattened joints; very prickly.

O. Rafinisquii. Flowers large, Y. Ju. Sandy land. With Wood we prefer to regard to this genus as of one species, vulgaris, and rafinisquii as but a variety of it. We could produce plants from about Ottawa answering to the descriptions and those differing from both.

Order 47. FICOIDEAE. Chiefly fleshy, succulent plants the following without petals.

MOLLEGO, A. Low, much branched.

M. verticillata. Carpet Weed. Prostrate; leaves spatulate, in whorls at the joints; pedicels 1 flowered; Ju. Sept. Sandy lands.

Order 48. UMBELLIFARAE. Umbel Worts.

Flowers in an umbel, small, generally W. or Y. petals 5, stamens 5. fruit small, dry, often aromatic; leaves generally compound.

DAUCUS. Carrot. Sometimes found in meadows.

D. Carota. A common plant of the garden.

ANGELICA. Archangelica of 5th Ed.

A. atropurpurea. Stout, smooth, purple; leaves 2 to 3 ternately divided segments, pinnate, 5 to 7. ovate, serrate leaflets; flowers W. River banks.

HERACLEUM. P. Cow Parsnip. Stout; leaves large, ternately compound.

PASTINACA. Parsnip. Stem grooved; flowers Y.

P. sativa. Leaves pinnately compound, ovate, cut-toothed. Very common and spreading.

MITCHELLA. Partridge Berry. A slender, trailing evergreen plant.

M. repens. Leaves small, round-ovate; flowers two together, ovaries united; berries Rs. $\frac{1}{4}$ in. dia.

POLYTAENIA. P. Generally smooth; leaves twice pinnate.

P. Nuttallii. Plant 2 to 3 ft.; flowers bright Y. Dry places.

THASPIUM. P. Meadow Parsnip. Leaves ternately divided, or the lower not with broad serrate or toothed leaflets; flowers Y. or P., fruit roundish instead of flat.

T. aureum. Smooth; flowers deep Y. 1½ to 2 ft.

T. " var. Atropureum. Flowers P.

PIMPINELLA. P. Differs from Thaspium in having entire leaflets and the fruit oblong.

P. integerrima. Slender, 1 to 3 ft., branching, M.

CRYPTOTAENIA. P. Smooth, leaves thin, 3 foliate.

C. Canadensis. Plant 1 to 3 ft., leaflets large, ovate, acuminate, doubly serrate, often lobed. Ju. Sept.

SIUM. P. Water Parsnip. Smooth, growing in water or wet places.

S. cicutaeifolium. Stout, 2 to 6 ft., leaves pinnate, 3 to 8 pairs of linear, lanceolate, acuminate, serrate leaflets, flowers small, white.

CICUTA. Water Hemlock. Smooth, growing in marshes.

C. maculata. Spotted Cowbane. Musquash Root. Beaver Poison. Stout, 2 to 5 ft. streaked with P., leaves 2 to 3 pinnate, leaves on long petioles; leaflets long narrow, serrate, acute, rather distant and very small for so large a plant; flowers W. small. Root fleshy, W. A dangerous poison.

CHAEROPHYLLUM. A. Leaves ternately compound; leaflets with long narrow lobes.

C. -procumbens. Reclining; flowers W. Moist grounds.

OSMORRHIZA. P. Sweet Cicely. Root thick, aromatic; leaves large ternately compound with ovate, toothed leaflets. Flowers W.

O. brevistylis. Hairy, dark G. fruit long, sharp-pointed. M. J. Damp woods.

O. longistylis. Nearly smooth, wide-branching; fruit club shaped, pointed.

ERYNGIUM. P. Tall, stout, rigid, whitish; leaves mostly radical, thick, stiff.

E. yuccaefolium. Rattlesnake Master. Button Snakeroot. Leaves long, narrow, acute, bristly margined; flowers W. in close heads $\frac{1}{2}$ to $\frac{3}{4}$ dia. Prairie, damp or dry.

SANICULA P. Herbs, smooth, tall, 1 to 3 ft. palmately lobed leaves, radical ones long stemmed; flowers in a leafy looking head, fruit with hooked prickles.

S. Marylandica. Black Snakeroot. Leaves 3 to 7 parted, parts sharp toothed and serrate; flowers very small, G. Y. Damp woods.

Order 49. ARALIA. Ginsengs:

Differs from umbelliferae in the fruit being a juicy berry instead of a dry seed. Styles of pistils more than 2.

ARALIA. P. Ginseng. Wild Sarsaparilla. Leaves very large $2\frac{1}{2}$ to 3 ft. broad, compound, stems P. or spotted and striped with P.

A. spinosa. Stem and petioles prickly; 8 to 12 ft. Sometimes planted for ornament.

A. racemosa. Stout, zigzag, smooth; flowers in small axillary umbels, G. W. fruit a small, P., aromatic berry. 3 to 4 ft. Rocky woods.

A. nudicaulis. Leaf one, 3 parted, each of 5 oval,

acute, serrate leaflets; flowers in 2 to 7 umbels on a naked scape. M, Ju. Woods.

- A. *quinquefolia*. Root thick, spindle shaped; leaves one, leaflets mostly 5; obovate-oblong, acute; fruit bright R. Ju. Rich, damp woods.

Order 50. CORNACEAE. Dogwoods. Cornels. Mostly small trees with bitter bark and very hard wood.

CORNUS. Dogwood. Flowers in cymes or close heads; bark of branches green or red, smooth, with brown warts. Bloom M. Ju.

- C. *Canadensis*. Low 5 to 7 inches; leaves in 4's or 6's flowers greenish; fruit R. Found on bank of Illinois river in Deer Park Tp. E. of mouth of Horseshoe Canyon. 6 or 7 years ago; not seen of late.

- C. *circinata*. Leaves round-oval, acute; G. above; lighter and woolly below. Fruit light B. 10 to 20 ft., branches G., woody.

- C. *sericea*. Branches P., those of the petioles and leaves below soft-downy; leaves elliptical, acute; fruit pale B. 3 to 10 ft.

- C. *stoloniferae*. Red Osier. Branches R. P., slender, smooth, fruit W. or B. 3 to 6 ft.. increases by runners. Wet places.

- C. *paniculata*. Branches P. gray, smooth, branching, 4 to 8 ft. Flowers W., fruit W. Damp places.

- C. *alternifolia*. Branches G. streaked with W., leaves alternate ovate or oval. acuminate, fruit deep B. 7 to 25ft. Hillsides.

NYSSA. Tupelo, Pepperidge, Sour gum Tree.

- N. *Sylvatica*, Branches horizontal; leaves oval, acute, or not, thick, bright, glossy G., turning crimson in autumn. A few bushes 8 to 10 ft.

high on the Reddick farm on the edge of sandstone about 40 rods from E. line of field.

DIVISION 11. GAMOPETALEAE or MONOPETALEAE. The Corolla of one piece.

Order 51. CAPRIFOLIA CEAE. Honeysuckles.

Leaves opposite; fruit a several seeded berry.

SAMBUCUS. Elder. Leaves pinnate, leaflets 5 to 11, leafless serrate, acute.

S. Canadensis. Flowers W. in broad cymes; fruit P.; 6 to 10 ft. Ju. J.

S. racemosa. Leaflets 5 to 7, berries bright .

S. racemosa dissecta. Leaflets cut into long narrow lobes. Deer Park Tp. $\frac{1}{2}$ mile W. of Horse-shoe Canyon, in ravine.

VIBURNUM. Arrow Wood. Flowers 2 parted; stamens 5; fruit a 1 seeded berry. Shrubs of damp land.

V. acerifolium. Dockmackie. Leaves somewhat 3 lobed, soft-downy below; flowers W. fruit Cr. becoming P.

V. pubescens. Low straggling; leaves long-ovate, acute, fruit dark P. Rocky places.

Jh. V. dentatum. Arrow Wood. Smooth. 5 to 15 ft. bark ash color; leaves wide-ovate, sharp toothed and strongly veined. J. Fruit P.

V. Lentago. Black Haw. Leaves ovate acuminate, sharply serrate; petioles margined; berries $\frac{1}{2}$ in. long flat, black, sweet, eatable.

V. prunifolium. Black Haw. Leaves oval, finely and sharply serrate; fruit smaller than that of Lentago.

TRIOSTEUM. P. Fever Wort. Horse Gentian. Hairy, leafy, to top.

T. perfoliatum. Leaves large, oval, bases almost meeting; flowers P., axillary in small clusters;

berries Or. crowned by calyx.

SYMPHORICARPOS. Snow Berry. A shrub with smallish, oval, leaves; flowers Pi. in leafy spikes and white globose berries of $\frac{1}{2}$ in. dia. Ju. Sept.

LONICERA. Honey-Suckle. Woodbine. Leaves entire.

L. *semper virens*, Trumpet Honeysuckle. Flowers R. without, Y. within.

L. *Sullivantii*. Whitish, smooth; leaves oval, sessile, and upper connate or united at base; flowers Y., berries Cr. L. *flava* of 5th Ed.

Jh. L. *glauca*. Smooth; leaves oblong, pale, 1 to 4 upper pairs connate; flowers G. Y. L. *parviflora* 5th Ed.

DIERVILLA. Bush Honeysuckle. Low straggling shrubs.

D. *trifida*. Leaves long-ovate, acuminate short petioled; flowers pale Y., J. Aug. Rocky places.

Order 52. **RUBIACEAE.** Madders. Leaves opposite; entire, connected by stipules seed pod 2 to 4 celled.

HOUSTONIA. Low plants with small, narrow leaves and W. or purplish flowers in flat-heads cymes.

H. *purpurea*. M. J. 3 to 6 in. Edges of bluffs. Ours var. *ciliolata*. Leaves somewhat thick.

CEPHALANTHUS. Button-bush. Flowers W. in dense globular heads.

C. *occidentalis*. Shrub. Smooth; leaves ovate, acute, shining above. In ponds and by slow running streams.

GALIUM. Cleavers. Leaves whorled, stems square and generally trailing and bristly.

G; *Aparine*. Weak and reclining; flower W., bell-

- shaped. Among the grass in wet lands.
- G. pilosum. Hairy; leaves oval, pedicels 2 to 3 forked. Dry places.
 - G. circaezans. Smooth or downy, 1 ft.; leaves oval to long-ovate, obtuse; peduncles once forked, flowers greenish. Woods.
 - G. trifidum. Leaves in whorls of 4 to 6, oblanceolate peduncles 1 to 7 flowered; var. Peat swamp.
 - G. concinnum, Leaves in 6's linear acutish. veinless; peduncles 2 to 3 times forked.
 - G. asprellum, Branching, rough hooked prickles turned backward; leaves in whorls of 6, 4 to 5 on branchlets, oval-lanceolate. Rich lands.
 - G. triflorum, Bristly roughened backward on angles leaves elliptical lanceolate, bristle pointed; peduncles 3 flowered. Woods, sweet scented.

Order 53. VALERIANACEAE. Valerians.

Leaves opposite and without stipules.

VALERIANA. P. Roots thick, strong scented.

- V. edulis. Leaves fine-hairy, of the root spatulate, of the stem pinnately parted into 3 to 7 narrow lobes, thickish, flowers W. 1 to 4 ft. Ju. Wet places.

VALERIANELLA. P. Corn Salad, Lamb Lettuce.

Stems forking; leaves opposite, oblong or linear.

- V. radiata. Leaves linear-oblong, obtuse, toothed toward base, smooth; light G. Flowers W. in cymes, small; 6 to 12 in. Ju. Wet springy lands.

Order 55. COMPOSITAE. Sunflowers.

Herbaceous or shrubby plants; flowers in close heads, surrounded by a several, many-leaved envelope, the *involuere* and looking like one large flower. The separate flowers—*florets*--are small and of two kinds, *tubular* like those of the thistle and the middle of the

sunflower or long, narrow and flat, strap-shaped or *ligulate*. Heads made up of tubular florets are said to be *discoid*, of ligulate florets *radiate*, part of one part the other *radiant*. When the two occur in the same head the ligulate are usually around the border and are called *rays*, the tubular in the middle, called the *disc*. The calyx is represented by hairs, bristles, awns, scales and teeth crowning the seed--*achene*. The leaves of the involuere are called *scales*. The hairs etc., crowning the seed is the *pappus*

The florets of the dandelion are ligulate of the thistle, Eupatorium and many others tubular, of the Aster, Solidaga or golden rod both kinds.

The order is divided into 3 sub-families, viz:
Tubuliflorae. Florets tubular or disc tubular, rays ligulate.

Liguliflorae. Florets all ligulate.

Labiatiflorae. Florets mostly labiate.

VERNONIA. P. Iron Weed. Stems leafy, leaves alternate, serrate, acuminate; heads small; flowers P. Aug. 2 to 6 ft.

V. fasciculata. Leaves long, narrow; scales obtuse.

V. altissima. Tall; leaves broader, heads not crowded.

V. Novaeboracensis. Scales tipped with a short awn.

EUPATORIUM. P. Toroughwort. Boneset. Heads small; flowers W., bluish or P., leaves opposite, J. Aug.

E. purpureum. Joe Pye Weed. Trumpet Weed. Tall; leaves in whorls of 3 to 6; flowers Pi., P.; 2 to 12 ft.

E. serotinum. Leaves ovate-lanceolate coarse-serrate; W.

- B. *E. altissimum*. Leaves lanceolate tapering to both ends upper alternate; W., 3 to 7 ft. Dry places.
- E. *perfoliatum*. Hairy leaves united at base; W. Damp lands. A powerful medicine; emetic and purgative.
- E. *ageratoides*. Smooth, branching; leaves broad, ovate, acuminate, toothed, thin; W. in large carymbs. Showy and handsome. 2 to 3 ft. Woods.
- KHUNIA. P. Leaves alternate, toothed or entire.
- K. *eupatorioidis*; Leaves long, narrow, flowers Y. Aug. Dry places.
- LIATRIS. Button Snake Root. Blazing Star. Heads nearly sessile, in long spikes. Splendid plants with rigid, leafy stems. P. flowers. Ju. Aug.
- L. *squarrosa*. Leaves stiff, long and very narrow; scale tips leafy, spreading; heads few; 1 to 2 ft.
- L. *cylindracea*. Usually smooth; leaves linear; heads few; scales short, rounded, mucronate; 6 to 18 in. Dry places.
- L. *scariosa*. Stout, 2 to 5 ft., woolly; leaves rough, upper leaves lanceolate, lowest long and petiolate; heads large; scale's tips dry or colored.
- L. *pycnostachya*. Stout 3 to 5 ft., very leafy; leaves narrow; heads many in a thick spike, small; scale tips recurved, colored.
- L. *spicata*. Smooth, leafy, 2 to 5 ft.; scale tips obtuse, close. Moist places.
- GRINDELIA. P. Smooth with sessile or clasping stiff leaves.
- G. *squarrosa*. Leaves spatulate to linear oblong; Y. Found by Prof. Boltwood in 1882 by the C., R. I. & P. R. R. 1 mile W. of Ottawa.
- SOLIDAGO. P. Golden Rod. Stems slender, stem leaves nearly sessile; flowers usually Y. in large

clusters of small heads.

- S. caesia. Stem round, smooth; leaves long, narrow, serrate, sessile; heads in short clusters.
- S. latifolia. Angular, zigzag; leaves broad-ovate, thin.
- S. bicolor. Hairy, leaves broad. lanceolate, acute at both ends, little serrate petiolate; clusters of flowers form a loose spike, W.
- S. bicolor var. con color. Flowers Y. Our form of the plant.
- S. semper virens, Smooth, stout, 1 to 8 ft.; leaves lanceolate, a little clasping; flowers in a loose panicle. One specimen collected by Mr. L. A. Williams, Atty. at Law of Ottawa near the Salt Marsh in fall of 1895.
- S. speciosa. Leaves thickish; panicle pyramidal.
- S. patula. Angled, smooth, 2 to 4 ft. leaves 4 to 8 in. long, ovate, acute, sessate, pale, rough above, veiny below; branches spreading. Swamps.
- S. rugosa. Rough-hairy, leafy, 1 to 6 ft., leaves thickish and rugose.
- S. neglecta. Leaves thickish, smooth; 2 to 4 ft. Damp lands.
- S. arguta. Stem angular; leaves ovate, thin serrate, lower petioles margined. Moist places.
- S. juncea. Smooth 1 to 3 ft., lower leaves with winged and hairy petioles, sharp sessate, racemes long, drooping.
- S. Missouriensis. Leaves long, narrow. margins very rough.
- S. serotina. Stout, smooth; leaves lanceolate, acute, serrate.
- S. serotina var. gigantea. S. gigantea of 5th Ed. Tall, more or less soft-hairy. 5 to 8 ft.
- S. Canadensis. Rough-hairy, stout, tall, 3 to 6 ft. leaves narrow, acute, more or less serrate. Com.

- S. *nemoralis*. Grayish-hoary-hairy; panicle one-sided.
 - S. *radula*. Stem and leaves very rigid and rough, G. Dry lands.
 - S. *rigida*. Rough and some hoary, stout, leafy, heads large. A fine plant. Dry lands.
 - S. *Ohioensis*. Smooth, slender, leafy; leaves entire, sessile. Moist places.
 - S. *Riddellii*. Leaves long, narrow, recurved; heads large. A beautiful species becoming less common year by year. Wet lands.
 - S. *lanceolata*. Rigid, rough, branching leaves, very narrow, entire. Damp sandy lands.
 - S. *tenuifolia*. Smooth leaves narrower than lanceolata.
- BOLTONIA.** P. Branching, smooth, pale G. herbs.
- B. *asteroides*. Stems 2 to 8 ft. leaves lanceolate. Along streams. B. *glastifolia* of 5th Ed.
 - B. *diffusa*. Branches spreading; leaves lance-linear.
- ASTER.** Starworts, Asters. Mostly perennials; flowering in autumn, disc yellow, rays W. B. P. Root and stem leaves often differ widely.
- A. *corymbosus*. Slender; leaves thin, ovate, cordate with slender petioles. W., Woods.
 - A. *macrophyllus*. Petioled margined; leaves thick.
 - A. *oblongifolius*. Branched, rigid; leaves lanceolate, mucronate, some clasping, thickish, a little downy; rays. V. P.
 - A. *Novae Angliae*. Stout, hairy, 3 to 8 ft., leaves entire, clasping, dark G. Rays V. P., Pi., P. W. A handsome plant.
 - A. *sericeus*. Slender; leaves silver-white, lanceolate, small, P.
 - A. *azureus*. Stem rough, branches, slender, rigid

leaves on long, hairy petioles, rough, cordate. B.

- A. Shortii. Slender, spreading nearly smooth; leaves lanceolate, acuminate; petioles naked. B.
- A. undulatus. Pale G., a little woolly; petioles margined or winged. B.
- A. cordifolius. Leaves cordate on naked, slender petioles. B.
- A. sagittifolius. Petioles margined. B.
- A. turbinellius. Leaves tapering to each end; margins rough.
- A. laevis. Leaves thickish, clasping, smooth, sky B.
- A. ericoides. Leaves short, narrow, acute. W. or purplish. Dry places.
- A. multiflorus. Hoary, soft-woolly, flowers crowded. W. or B. Sandy lands.
- A. dumosus. Smooth, leaves long, narrow, crowded, entire.
- A. diffusus. A. miser of 5th Ed. Branching woolly; leaves long, narrow, pointed at both ends, serrate in middle.
- A. Tradescanti. Leaves very long and narrow, serrate in middle.
- A. paniculatus. A. simplex of 5th Ed. Very branching, 2 to 3 ft., forming a panicle.
- A. salicifolius. A. carmens of 5th Ed. Leaves shorter, thicker, and less serrate than in paniculatus.
- A. longifolius. Leaves very long, 3 to 7 in. narrow, scarcely serrate. Low places.
- A. Novi Belgii. Leaves narrow-lanceolate, upper clasping; rays B. Vi.
- A. puniceus. Tall, stout, 3 to 7 ft.; leaves rough above, smooth below. Rays lilac color.

- A. umbellatus. Smooth, leafy to top, 1 to 7 ft.; leaves long, acute at both ends; heads in flat corymbs.
- A. linarifolius. Several stems from a woody root, leaves about 1 in. long narrow, rough; heads rather large, rays Vi. 6 to 15 in. Sandy lands and among rocks. A handsome plant.

ERIGERON. Fleabane. Mare's Tail. More or less hairy plants with W. or P. disc. Rays thread-like, very many. M. Aug.

- E. Canadensis. Bristly-hairy, erect; leaves narrow, lower toothed, flowers small. 1 to 5 ft.
- E. annuus. Stout, 3 to 5 ft. hairy; lower leaves ovate, toothed with margined petioles, upper entire.
- E. strigosus. Smaller and less branched than annuus; heads smaller with longer rays. Ju. Aug.
- E. bellidifolius. Robin's Plaintain. Hairy; heads few 1 to 9, on slender peduncles; rays rather broad. B. P. M.
- E. Philadelphicus. Common Fleabane. Leaves thin with a broad midrib, oblong; heads several small. Ju. Aug.

ANTENNARIA. P. Everlasting. White-woolly herbs; leaves narrow, entire; flowers Y.

- A. plantaginifolia. Plantain Leaved Everlasting. Ladies' Tobacco. A low plant spreading by runners and offsets, stam. and pist. flowers on different plants; upper surface of the oval-spatulate, petioled root leaves when old are G., lower W. 6 to 15 in.; M. Poor lands.

GNAPHALIUM. A. Cudweed. Balsam Woolly herbs, very branching.

- G. polycephalum. Erect, W. fragrant; scales

shining, dry; florets Y. Pastures and woods.

POLYMNIA. P. Leaf Cup. Tall branching sticky-hairy, strong scented herbs.

P. Canadensis. Leaves thin, lower pinnate lobed, upper triangular-ovate; heads small, W. Y. 2 to 5 ft. Woods, becoming more common.

Jh. P, Uvoedalia. Lower leaves palmately lobed on winged petiole, outer scales large 4 to 10 ft.

SILPHIUM. P. Rosin Weed. Tall, rough resinous-juiced plants with large heads and palish Y., flowers. J. Aug. Seeds flat, winged.

S. laciniatum. Compass Plant. Hairy leaves large, pinnately parted, the segments lobed. 3 to 10 ft.

S. terebinthinaceum. Prairie Dock. Leaves large, cordate, rough; stem slender, smooth, nearly leafless. 4 to 12 ft.

S. trifoliatum. Stem smooth; leaves in whorls of 3 to 4 upper opposite. 3 to 4 ft.

S. integrifolium. Stem rigid 4 angular, grooved; leaves, opposite, rigid.

S. perfoliatum. Cup Plant. Leafy, leaves united at base so as to form a cup, large, ovate, coarse toothed.

PARTHENIUM. Heads small, woolly, W. Rays 5, very small, W.

P. integrifolium. Leaves large ovate, crenate; lower lobed; dark G. Heads in small corymbs.

IV A. A. Marsh Elder. Heads small in long, slender spikes.

I. xanthifolia. Leaves mostly opposite, hoary, rough, broad-ovate, toothed. 3 to 5 feet. Ottawa. Has recently appeared here.

AMBROSIA. A. Ragweed. Horse Weed. Coarse weeds.

- A. trifida. Tall, rough, grooved; leaves 3 to 7 lobed, 3 to 15 ft.
- A. artemisiae folia. Hogweed, Ragweed. Leaves thin, cut into narrow lobes; stam. flowers Y. in. long, slender spikes. 1 to 5 ft.
- A. psilostachya. Leaves acute, lobed, rough, hoary. 1 to 3 ft.. Ottawa.
- XANTHIUM. A. Cockle Bur. Clot Bur. Ohio Burdock.
- X. strumarium. A great nuisance.
- HELIOPSIS. P. Oxeye. Erect, smooth, branching plants.
- H. levis. Leaves opposite, petiolate, ovate-lanceolate, serrate, smooth; flowers solitary. Y. 1 to 4 ft. Aug.
- H. Scabra. roughish; rays oblong.
- ECHINACEAE. Cone Flowers. Tall, rough, stem almost leafless.
- E. purpurea. Leaves long and narrow; heads large, solitary, with long, purplish, drooping rays.
- RUDIBECKIA. Heads with brown conical discs and land, Or. Y. rays.
- R. triboda. B. Very branching, hairy, slender, 2 to 5 ft.; leaves lobed or toothed; heads small.
- R. subtomeltsa. Downy; leaves lanceolate, serrate. 3 to 4 ft.
- R. hirta. B. Very rough-hairy; leaves entire; rays 1 in. long.
- R. specisca. Roughish, hairy, with upright branches.
- LEPACHYS. P. Tall, slender; rays pale Y. drooping, disc gray; 3 to 6 ft.
- L. pinnata. Hoary-hairy; leaves of 3 to 7 lanceolate, acute leaflets.

HELIANTHUS. Sunflowers. Tall, stout plants.

H. annuus. Common Sunflower of gardens.

H. rigidus. Rough, leaves thick, rigid.

H. lactiflorus. Leaves thinner than in rigidus.

H. occidentalis. Hairy, slender; heads 1 to 5 on long peduncles.

H. mollis. Leaves opposite, sessile, some serrate leafy to top.

A. tomentosus. Stout, 4 to 8 ft.; leaves oval, clasping.

H. grosse serratus. Smooth 6 to 12 ft. Leaves long narrow, acute, sessate.

H. giganteus. Hairy, rough, 3 to 10 ft.; leaves scarcely serrate.

H. doricoides. Roughish, 3 to 7 ft.; leaves sessile, ovate-oblong.

H. divaricatus. Smooth; leaves opposite spreading sessile, serrate, thickish

H. strumosus. Smooth below; leaves long-ovate, acute, rough above, whitish below. 3 to 6 ft.

H. decapetalus. Leaves ovate, acute; petioles margined; rays about 10. 2 to 5 ft.

H. tuberosus. Leaves ovate, acuminate, rough above; sometimes cultivated for its tuberous roots.

W. H. angustifolius. Rough, 2 to 6 ft.; leaves linear, sessile.

ACTINOMERIS. P. Leaves serrate tapering to base and running down the stem.

A. squarrosa. Hairy, winged, 4 to 8 ft.; leaves alternate or opposite; rays Y.

COREOPSIS. Leaves opposite, rays Y. or Y. blotched with P., rarely wholly P.

C. lanceolata. Branched at base, smooth; leaves entire, thick, heads large and showy; rays lobed.

- Jh. *C. lanceolata* var. *angustifolia*. Leaves narrow, crowded.
- C. *palnata*. Nearly smooth; 10 to 15 in., leafy; leaves 3 lobed, rigid.
- C. *tripteris*. P. Tall, Careopsis. Smooth, 4 to 9 ft.; leaves palmately 3 to 5 lobed.
- C. *trichosperma*. Smooth; leaves pinnate, 3 to 7 leaflets, serrate. Wet lands.
- C. *aur rea*. Nearly smooth, 1 to 3 ft.; leaves 3 to 7 leaflets, or undivided, serrate or lobed. Wet lands.

BIDENS. Bur Marigold. Achenes or seeds flat and crowned with two or more barbed awns by which they stick to clothing.

- B. *fronda sa*, Common Beggar Ticks, Stick tight. Cuckle. Awns 2.
- B. *connata*. Swamp Beggar Ticks. Seeds look shriveled. awns 4.
- B. *cornua*. Smaller Bur Marigold. Heads nodding, rayed or not awns 4, barbed downward; 5 to 30 in. Along streams.
- B. *chrysanthemoides*. Rays golden, 1 in. long; swamps.

HELENIUM. Smeeze-weed. Branching from base, very leafy, leaves decarred, alternate, 1 to 3 ft.

- H. *autumna le*. Almost smooth; leaves toothed; rays 3 to 5 cleft. Damp, rich lands.

DYSODIA. A. Plants with finely divided leaves and a strong odor.

- D. *chrysanthemoides*. Dog Fennel. Leaves with thread-like lobes, opposite; rays few, short; 6 to 18 in. Waste places.

ANTHEMIS. Branching with finely divided leaves; strong scented.

- A. *cot*. Mayweed. Branching from ground; slen-

der rays W. disc Y. 12 to 18 in. Roadsides.

ACHILLEA. P. Yarrow. Heads small in carymbs. W. or R.

A. millefolium. Stems grooved. 2 to 3 ft.; leaves mostly radical, cut into hair-like divisions.

TANACETUM. P. Tansy. Very bitter and strong scented.

T. vulgare. Smooth, 1 to 3 ft., leaves 1 to 3 pinnately divided, serrate; head almost rayless, Y.

T. vulgare. var. Crispum. Leaves crisped. Escaped from yards.

ARTEMISIA. P. Bitter and aromatic herbs.

A. dracunculoides. Slightly hoary; leaves linear, entire or 3 cleft; heads small, many; 2 to 5 ft.

A. ludoviciana. White-woolly; upper leaves entire, lower cut and lobed; heads sessile. Variable, 1 to 5 ft.

A. biennis. Leaves more or less divided; lobes linear, acute; heads in spikes forming a leafy panicle. 1 to 3 ft.

A. absinthum. A bitter, silky-hoary, shrubby plant of the garden.

SENECIO. P. Groundsel. Leaves alternate; heads solitary.

S. aureus. Golden Ragwort. Squaw-weed. Leaves cordate, crenate; lyrate or lanceolate lobed; small; heads small on long peduncles, forming a corymb; $\frac{1}{3}$ in. broad, Y. 8 to 20. in.

CACALIA. P. Smooth; stems tall, 2 to 5 ft., leaves alternate.

C. atriplicifolius. Stems round; leaves rhomboid, angled; heads W., rayless.

C. tuberosa. Stem angled and grooved, 2 to 6 ft.

- ARC TIUM. B. Burdock. Heads covered with hooked bristles.
- A. lappa. Leaves large, ovate, woolly, clammy; 1 to 4 ft.
- CNICUS. B. Thistle. Plants armed with sharp prickles.
- C. altissimus. Downy, 3 to 10 ft., leaves toothed, W., woolly.
- C. altissimus. var. discolor. Leaves lobed; 2 to 6 ft.
- C. muticus. Tall, 3 to 8 ft; leaves W.-hairy beneath, lobed.
- C. pumilus. Short, stout, 1 to 2 ft., hairy, bearing 1 to 3 large heads; fragrant, a very pretty thistle.
- C. arvensis. P. Canada Thistle. Slender, 1 to 2 ft. leaves bright G. nearly smooth; smallish with wavy, prickly margins; heads small, P. A bad weed.
- KRIGIA. A. Dwarf Dandelion. Branched from base.
- K. Virginica. Small, leaves mostly radical, scapes branching; flowers Or., one-fifth in. broad; 1 to 6 in.
- K. amplexicaulis, M. Radical leaves winged-petiolate; of stem clasping, 1 to 3 smooth; heads Y. 1 in., broad, 1 to 2 ft. J. Woods and fields.
- HIERACIUM. R. Hawkweed. Hairy often clammy leaves.
- H. Canadense. Leaves sessile; lanceolate, acute, remotely and coarsely-toothed; flowers Y. 1 to 3 ft. Dry places.
- H. longipilum. Hairy, leafy below, naked above. Peduncles glandular bristly. 2 to 3 ft.
- PRENANTHES. P. Rattle Snake Root. Stems leafy, flowers G. W. or Y., P. tinged. Nabalus of old Ed.

- P. crepidinea*. Stout, 5 to 9 ft., leaves broad-triangular-ovate, strongly toothed, petiolate nodding. Woods.
- P. aspera*. *asper* 5th Ed. Rough, downy; leaves lanceolate, toothed; 2 to 4 ft. Dry places.
- P. alba*. *albus* of 5th Ed. White lettuce. Smooth, pale G.; leaves angular, toothed upper oblong entire. Rocky places and woods.
- TROXIMON. *P.* Leaves long, narrow, acute, radical.
- T. cuspidatum*. Scape 1 ft., head large, Y. Ap. M. On old fair ground near river.
- TARAXACUM. *P.* Common Dandelion.
- T. officinale*. *Dens leonis* of 5th Ed.
- LACTUCA. *A.* Lettuce. Stems leafy, juice milky; heads paniced.
- L. scariola*. Stem and midrib of leaves prickly; 1 to 5 ft. Everywhere.
- L. Canadensis*. Tall, 4 to 9 ft., leaves lobed or not. Flowers Y. Hedges.
- L. integrifolia*. Leaves lanceolate, acute, toothed or entire.
- L. Florida na*. Leaves lobed or toothed upper often clasping, flowers B. 3 to 7 ft. Hedges.
- SONCHUS. Sow Thistle. Stems leafy, smooth, light G.
- S. oleraceus*. Leaves clasping and slightly toothed with soft, spiny teeth; flowers pale Y.
- S. asper*. Leaves divided, more spiny.
- Order 54. LOBELIA CEAE. Lobelias.
juice acrid, milky; corolla irregular 5 lobed; stamens 5 free from corolla.
- LOBELIA. Corolla split on one side somewhat two-lipped; flowers axillary, stems leafy.
- L. cardinalis*. Cardinal Flower. Leaves oblong;

flowers scarlet 1 to 3 ft. Seen in S. E. part of Fall River Tp. 1877, and in Deer Park Tp. on Vermillion 1897. A splendid flower.

L. *siphilitica*. P. Blue Lobelia. Great Lobelia. Very leafy, hairy, flowers B., Vi. B. pale B. 1 to 2½ ft. Aug. Sept. Wet places.

L. *leptostachys*. Stem weak, leaves small; flowers small scattered in a long spike; B, 10 to 30 in. Ju. J. Meadows.

Jh. L. *spicata*. stem slender, 1 to 4 ft.; leaves, lower obovate, upper linear; flowers B. in a long spike. Gravelly or sandy soils.

Jh. L. *Kalmii*. Stem somewhat angled, 1 to 2 ft.. erect; leaves linear.

L. *inflata*. ? Lobelia. Indian Tobacco. Very branching hairy; leaves ovate, toothed; flowers small, pale B. 1 to 2 ft. Dry knolls, A powerful emetic, not to be trifled with.

Order 57. CAMPANULA CEAE. Campanulas. Juice milky; leaves alternate; flowers scattered, corolla 5 lobed; stamens 5, pistil one; styles 2.

SPECULARIA. Venus Looking Glass. Flowers axillary, P.

S. *perfoliata*. Stem erect, grooved, hairy; leaves roundish-cordate, clasping stem; stiff; 6 to 15 in. Poor dry places.

CAMPANULA. Flowers terminal or axillary.

C. P. *rotundifolia*. Harebell. Very slender; root leaves round-cordate, crenate. petiolate, dark G.; of the stem long and narrow, flowers broad bell-shaped; Vi. B. 1 in. broad; 10 to 18 in, Ju. Aug. Bluffs and in clefts of rocks. The root leaves often wither away before the plant flowers; but they are often present.

C. *aparinoides*. Weak, 3 angled, rough, few

flowered, flowers small, W. Wet, grassy places.

- C. *Americana*. A. Tall 2 to 6 ft.; leaves lanceolate, acuminate, serrate; flowers wheel shaped, light B. 1 in. broad, in a long spike. J. Woods and along streams.

Order 58. ERICACEAE. Heaths.

GAYLUSSACIA. Huckleberry. Low, branching shrubs.

G. resinosa. Black Huckleberry. Bluffs.

VACCINIUM. Blueberry. Billberry.

V. vacillans. Low Blueberry. Bluffs.

PYROLA. P. Shin leaf. Low plants, leaves radical,

P. elliptica. Leaves elliptical dull thin; petiole margined. Scape many flowered; flowers in a raceme, G. W. 6 to 12 in. Woods W. of Starved Rock.

MONOTROPA. Indian Pipe. Whole plant white.

M. uniflora. Smooth, waxy, W. 1 flowered. Turns Bl. in drying, flowers nodding. 3 to 8 in. Dark Woods.

Order 61. PRIMULACEAE. Primroses.

DODECANTHEON. P. Leaves radical, oblong.

D. media. American Cowslip. Mead's Violet. Shooting Star. Smooth; scape naked with bracts at top and an umbel of W. or Rs. flowers. 18 to 20 in. M. Ju. High banks of the Ill. and Prairies.

ANDROSACE. A. Root leaves clustered; flowers small.

A. occidentalis. Scapes spreading, 2 to 4 inch. Many flowered. Sandy places.

STEIRONEMA. P. Leafy, smooth except petioles, leaves opposite, flowers Y.

S. ciliatum. Erect, 2 to 4 ft., leaves long-ovate, acute. *Lysimachia ciliata* 5th Ed. Wet places.

- S. *longifolium*. Erect, 4 angled, slender. 1 to 3 ft. Leaves linear to spatulate, sessile, margins revolute. Ju. Aug. By streams.
- LYSIMACHIA. Loose Strifes. Leaves glandular dotted.
- L. *quadrifolia*. Leaves in whorls of 4's or 5's, flowered, on long hair-like peduncles; $\frac{1}{2}$ in. broad, 1 to 2 ft. Ju. Wet lands.
- S. *stricta*. Leaves numerous, opposite, lanceolate, acute, at each end, often produces bulbs in the axils.
- L. *nummularia*. Moneywort. Creeping, leaves roundish, small, short petioled. Escaped from gardens.
- ANGALLIS. Pimpernel. Spreading or prostrate plants.
- A. *arvensis*. Leaves ovate, sessile, flowers Sc. Ju. Aug. Sandy lands.
- SAMOLUS, Water Pimpernel. Brook-weed.
- S. *valeriandi*. Erect with obovate leaves and small W. flowers in racemes; 6 to 12 in. Wet places.
- Order 65, OLEACEAE. Olives. Ashes.
- FRAXINUS. T. Ash. Trees with petioled pinnate leaves of 3 to 15 leaflets. Timber light, tough.
- F. *Americana*. White Ash. Leaves of 7 to 9, ovate, acute, serrate leaflets; bark gray, furrowed, branches smooth flowers Br. Ap. M.
- F. *sambucifolia*. Black Ash. Leaves of 7 to 11 leaflets. Wet woods.
- Order 66. APOCYNACEAE. Dogbanes.
- Juice milky; leaves opposite generally and entire.
- APOCYNUM. Fruit a long, slim pod.
- A. *androsaemifolium*. Spreading-branched, usually smooth; branches forking; leaves ovate, short petiolate, light G. Flowers bell-shaped one-

fifth in. broad, Pi. Ju. J. Stem often red. Spreads by roots. Often called Wandering Milkweed. Cult. fields.

- A. *cannabinum*. Branches upright, flowers G. W. small. In woods and by streams.

Order 67. ASCLEPIADA CEAE. Milkweeds. Silkweed.

Juice milky, flowers in umbels; fruit a pod. Seeds with a cottony plume.

ASCLEPIAS. P. Milkweed. Leaves large, opposite, thick.

- A. *tuberosa*. Butterfly-weed. Pleurisy Root. Erect, hairy, leafy; leaves long, lanceolate, dark G. flowers Or. Y. R. in large umbels. Jn. Prairies. A beautiful plant. Juice not milky.
- A. *purpurascens*. P. Milkweed. Leaves elliptical, downy below, petiole short; flowers P. 1 to 3 ft. Prairies.
- A. *incarnata*. Smooth; juice scarcely milky; very leafy; leaves oblong-lanceolate, acute; flowers Rs. P. 2 to 3 ft. Swamps.
- A. *cornuti*. Common Milkweed. Leaves oval-oblong, 4 to 8 in. long, soft-woolly, palish G., stiff; flowers in large clusters, dull P.; pods warty, 3 to 4 in. long.
- Jh. A. *Sullivantii*. Smooth, tall; leaves ovate-oblong cordate, nearly sessile, flowers P.; pod smooth. Damp lands.
- A. *obtusifolia*. Leaves cordate, clasping, oblong, very obtuse, sessile; flowers in 1 umbel, G. P.; peduncle long. 2 to 3 ft. Sandy lands.
- A. *Meadii*. Slender. 1 to 2 ft.; leaves oblong-ovate, obtuse, 1½ to 2½ in. long; flowers G. W. in a solitary umbel.
- A. *phytolaccoides*. Poke milkweed. Leaves broad-

ovate, narrowed to both ends, short-petioled; flowers rather large, 15 to 20 in an umbel, G. Pi.; 3 to 5 ft. Moist thickets.

H. *variegata*. Leaves 4 to 5 pairs, ovate to obovate, short-petioled; umbels very compact; flowers nearly W. 1 to 2 ft. Dry Woods.

Y. *verticillata*. Leaves thread-like, 3 to 6 in a whorl. Flowers G. W. Dry places.

ACERATES. Green Milkweed. Flowers G. W. Umbels compact.

A. *viridiflora*. Stems several, 1 to 2 ft.; leaves oval to linear, thick; umbels nearly sessile. Sandy lands.

Order 69. GETIANA CEAE. Gentians.

GENTIANA. Gentian. Calyx 4 to 5 cleft; corolla 4 to 5 lobed with folds between lobes, B. or W.

D. *crinita*. Smooth, 1 to 1½ ft., leaves lanceolate, more or less cordate, P. G. or Br. G.; flowers large 2 in. long. Vi. B. to B. Damp places. Not common.

G. *quinqueflora*. Slender, branching, 1 to 2 ft; leaves somewhat clasping, lanceolate, 3 to 7 veined; flowers pale B.; lobes of corolla bristle pointed.

G. *puberula*. Stems usually 1, erect, 8 to 16 in.; leaves rigid, narrow-lanceolate; flowers clustered, bright B. One of the last flowers of autumn. Scarce.

G. *Andrewsii*. Closed Gentian. Flowers look like buds about to open. B.

G. *alba*. Flowers crowded into a sort of head, W. or cream color. Corolla club shaped.

Jh. MENYANTHES. P. Buckbean. Flowers on a naked scape.

M. *trifoliata*. Leaves of 3 oval leaflets.

Order. 70. POLEMONIA CEAE. Phloxes.

PHLOX. P. Leaves opposite, sessile, entire.

- P. paniculata. Smooth, stout, 2 to 4 ft.; leaves long-lanceolate acute, upper often cordate; flowers in a large, pyramidal panicle, P. to W. Open woods.
 - P. maculata. Wild Sweet-William. Spotted with P., slender, 1 to 2 ft.; flowers P. panicle narrow. Woods and along streams.
 - P. glaberrima. Slender, 1 to 3 ft., leaves narrow, long, acute, smooth except margins; flowers in a loose corymb.
 - P. pilosa. Slender, 1 to 1½ ft., hairy; flowers Pi., P., Rs. R or W. Corolla lobes obovate, entire. Woods.
 - Jh. P. anona. P. procumbens 5th Ed. Leaves broad or narrow-lanceolate, short pointed, acute, on young shoots often ovate; 1 to 1½ ft.
 - P. reptans. Has runners with thick, broad-obovate; smooth leaves.
 - P. divaricata. Spreading from a decumbent base, corolla pale lilac or bluish; lobes obcordate, notched at end. Woods.
 - P. bifida. A little woolly, branched; leaves linear, whitish; corolla. P. W., lobes 2 cleft. Sandy places. S. Ottawa W. of old slaughterhouse. Also near bluff S. E. U. S. Silica Co.'s works.
 - P. subulata. Moss Pink. Reclining; leaves linear; flowers Pi. P., or Rs. with a darker center or W.; lobes notched. Dry rocky hills.
- POLEMONIUM. Greek Valerian. Corolla, bell-shaped. B. or W.
- P. reptans. Smooth, spreading, leaves alternate, pinnate of 5 to 15 oblong leaflets; flowers in corymbs; 10 to 15 in. Never creeps.

Order 71. HYDROPHYLLACEAE. Watershields.
HYDROPHYLLUM. P. Leaves long-petioled,

angled or lobed; Ju. to Aug. Woods.

H. macrophyllum. Rough-hairy; leaves pinnately 9 to 15 lobed; lobes toothed; flowers in a globular cluster; calyx very hairy, pale P.

H. Virginicum. Leaf lobes 5 to 7 peduncles longer than petioles, 1 to 2 ft. Ju.

H. Canadense. Smooth; leaves palmately 5 to 7 lobed; flowers nearly W. on short pedicels.

H. appendiculatum. Lowest leaves pinnately lobed, of the stem palmately 5 lobed; flowers in loose clusters.

ELLISIA. A. Leaves lobed, lower opposite; flowers whitish.

E. Nyctelea. Hairy; leaves 7 to 13 lobed; peduncles in the forks or opposite the leaves, 1 flowered. Calyx enlarges in fruit. 6 to 12 in. Woods.

Order 72. BORRAGINACEA. Borages.

Rough, hairy plants; leaves alternate, entire; calyx 5 parted; corolla 5 lobed; fruit 4 seed-like nutlets.

CYNOGLOSSUM. B. Lower leaves petioled; fruit a bur-like nut.

C. officinale. Common Hound's Tongue. Upper leaves sessile; flowers R. P. small, many in a spike-like panicle.

ECHINOSPERMUM. Stickseed. Beggarticks. Beggar-lice.

E. Virginicum. Branched, leaves of stem long-lanceolate, tapering to both ends, fruit a small, bur-like seed; flowers very small, B. Woods.

MERTENSIA. Lungwort. smooth, leaves large, light G.

M. Virginica. P. Virginia Cowslip. Bluebells. Leaves obovate veiny, of the root long-petioled;

- flowers trumpet shaped P. B. to W., Pi. at first.
Along streams.
- MYOSOTIS. Forget-me-not. Mouse-ear. Low, 4 to 12 in., branched from base; flowers W.
- M. verna. Whitish, leaves oblong, obtuse; M. J.
- LITHOSPERMUM. Root thick, red; leaves narrow, sessile; flowers Y., fruit 4 W. nutlets.
- L. officinale. P. Branched; leaves broad-lanceolate, acute, thinish; flowers pale yellow, small, 2 to 3 ft.
- L. hirtum. Flowers deep Or., larger.
- L. Canescens. Pucoon. More or less hoary, 6 to 15 in.; leaves linear-oblong; flowers sessile, Or. M. Meadows and woods.
- L. angustifolium. longiflorum of 5th Ed.
Branched from base, weak, 6 to 18 in.; leaves long, linear, hoary; tube of corolla long, border wavy, pale Y. Dry soils.
- ONOSMODIUM. P. False Gromwell. Bristly hairy plants.
- O. Virginianum. Slender, 1 to 2 ft., leaves narrow, oblong, flowers small, G. Y. Hillsides.
- Jh. O. Carolinianum. Rougher, taller; leaves oblong-lanceolate, acute. By streams.
- Order 73. CONVULVULACEAE. Morning glories. Mostly slender vines or trailing plants; flowers bell-shaped, opening in the morning and withering before close of day.
- IPOMEEA. Nil. Hairy; leaves cordate, 3 lobed; Cr. W. In fields.
- I. purpurea. Common Morningglory. Sparingly in fields.
- I. pandurata. Man of the Earth. Flowers large, 3 in. broad W. with a purple center. Rich lands along streams.

CONVOL VULUS. Bindweed. Morning-glory of the farmer.

- C. spithamaeus. Erect, downy, 6 to 15 in. flowers W. Dry sandy lands.
- C. sepium. W. or Pi. Everywhere in cult. lands.
- C. arvensis. Prostrate, slender, leaves dark, dull G., flowers W. .1 in. broad. R. Deer Park Tp.

CUSCUTA A. Leafless with very slender, yellowish or reddish stems attached to stems of other plants.

- C. tenuiflora. Coarse, yellow. Wet places.
- C. Gronovii. Or. Showy and handsome. Damp places.
- C. glomerata. Flowers W. in dense clusters like ropes closely coiled about stems of wild sunflowers along streams.

Order 74. SOLANA CEAE. Nightshades.

Corolla wheel-shaped; stamens 5; leaves alternate pinnate or lobed.

SOLANUM dulcamara. P. Bittersweet. Climbing; leaves entire to hastate, dark G.; flowers in clusters, B.; berries Sc.

S. nigrum. A. Nightshade. Erect, branching; leaves thin, ovate; margins wavy, toothed, fl. W.; berries Bl. Fields.

S. Carolinense. P. Erect, hairy, prickly; prickles stout, Y. C. B. & Q. track N. E. of Ottawa and other places.

S. rostratum. A. Very prickly, hoary; leaves lobed; fl. Y. Rock Island tracks, Ottawa.

PHYSALIS. A. Ground Cherry. Calyx inflated enclosing fruit.

P. Philadelphica. Leaves ovate, oblong; corolla Vi. spotted in center; berry purplish filling calyx.

- P. angulata. Corolla not spotted, small.
- P. pubescens. Often decumbent, leaves angular; corolla spotted with Br. P.
- LYCIUM vulgare. Shrub with long recurved branches, small, light G., oblong leaves; flowers in axillary clusters, G. P.; berries Or. R. About yards and old places.
- DATURA. A. Jamestown-weed. Thorn Apple. Stinkweed.
- D. stramonium. Smooth; leaves large, serrate toothed; corolla W.; stem G.
- D. Tatula. Stem P. corolla Vi. P.
- D. Petunia nyctaginiflora. The well known petunia, escaped from gardens.
- Order 75. SCROPHULARIACEAE. Figworts.
Stamens 2 or 4, perfect, rarely 5, in pairs; fruit 2 celled.
- VERBASCUM. B. Flowers in a long dense spike.
- V. thapsus. Very woolly; leaves oblong, acute; flowers Y.
- LINARIA. Toad Flax. Corolla spurred at base.
- L. Canadensis. Smooth, 6 to 30; in. leaves linear; flowers P.
- L. Canadensis alba. Fl. W. Both sandy soils.
- L. vulgare. Butter and eggs. Stems very leafy; flowers large, Y. or Or. Old yards.
- Scrophularia nodosa. Smooth, 4-sided; leaves ovate, acuminate; flowers small, scattered, G. P.; 3 to 5 ft.
- Jh. COLLINSIA Verna. Slender, 6 to 20 in., leaves ovate to long-ovate, cordate, sessile and clasping; fl. B. and W. in whorls of about 6.
- CHELONE. Turtlehead. Snakehead. Erect, branching, smooth.

- C. *glabra*. Leaves narrow-lanceolate, serrate, dark G.; fl. large W., clustered. 15 to 36 in. Wet lands.
- C. *glabra rubra*. Flowers R., P. in a close cluster. Deer Park.
- PENTSTEMON. Corolla tubular, inflated or bell-shaped. Leaves opposite, upper clasping.
- P. *pubescens*. viscid pubescent more or less, leaves ovate to oblong; fl. dull Vi. or P.
- P. *laevigatus*. Nearly smooth, leaves glossy; corolla much inflated.
- P. *laevigatus*. Digitalis. Corolla more inflated, W.
- MIMULUS. P. Monkey flower. Leaves opposite; flowers solitary.
- M. *ringens*. Stem square, 1 to 2 ft. leaves oblong, acute, serrate, clasping; fl. Vi. P. Showy.
- CONNOBEA *multifida* A. Spreading branched; fl. pinnately lobed; fl. G. W. Along streams.
- HERPES TIS *rotundifolia*. Smooth, creeping; leaves roundish; fl. W. or pale B.
- GRATIOLA *virginiana*. Stem clammy, leaves lanceolate, toothed; fl. W. with Y. Tube.
- G. *sphaerocarpa*. Smooth; leaves oblong; 5 to 10 inches.
- ILLYSANTHUS *repens*. Much branched, spreading, leafy; smooth; leaves ovate, toothed or entire, fls. axillary.
- VERONICA. Leaves opposite or whorled, fls. small.
- V. *virginica*. P. Culver's Physic. Stem straight, 2 to 5 ft., leaves whorled 4 to 7, lanceolate acute, fls. small, W. in long slender spikes. J. Aug. Woods.
- V. *anagallis*. P. Smooth, creeping and rooting at base, then erect; fls. W., P. striped. Brooks and ditches.

- V. peregrina. A. Erect, 4 to 9 in., oval-oblong, thick, lower petioled, fls. W.
- V. arvensis. Hairy, 3 to 8 in., leaves ovate, crenate to lanceolate, entire.
- V. agrestis. Leaves round or ovate, crenate.
- SEYMERIA Macrophylla. Mullein Fox-glove. Leaves pinnately parted to entire, lanceolate; fls. large $1\frac{1}{2}$ in. broad, tube curved Y., 2 to 3 ft.
- GERARDIA. Corolla bell-shaped, P. or Y., late blooming.
- Jh. G. grandiflora. Leaves more or less lobed; fls. Y.
- G. laevigata. Leaves lanceolate, entire or lower toothed, Y. integrifolia of 5th Ed.
- Jh. G. auriculata. Hairy leaves except lowest lobed at base. P.
- G. purpurea. Branches spreading, rigid, leaves linear, P.
- G. tenuifolia. Leaves narrow-linear, acute, fls. P., $\frac{1}{2}$ in. long. Wet lands.
- CASTILLEJA Coccinea. Painted cup. Erect, hairy; leaves of root entire, of stem deeply toothed, floral bracts 3 to 5 lobed, scarlet toward ends, flowers pale Y. Looks like a large head of scarlet flowers., 5 to 15 in. Sandy Woods.
- C. sessiliflora. P. Grayish floral leaves, not colored. Near La Salle.
- PEDICULARIS. Lousewort. Leaves pinnately divided, the floral bract-like.
- P. Canadensis. Flowers in a short, thick spike, G., Y. and P. 5 to 12 in., M. J. Damp lands.
- P. lanceolata. Fls. pale Y. 1 to 3 ft.
- Order 76. OROBANCHA CEAE. Bromrapes. Thick or fleshy herbs, brown or yellow and usually parasitic.

COOPOPHOLIS, Americana. Squaw-root. Cancer Root. Yellowish, clustered; fls. in spikes. Woods R.

APHYLLON uniflorum. Plant W.; fls. P. W. 3 to 5 in. Woods. Not common.

Order 77. LENTIBULA CEAE. Bladderworts. Water plants with finely divided leaves bearing little bladders which float them at the time of flowering, corolla 2 lipped.

UTRICULA RIA. vulga ris. Stems 2 to 3 ft.; fls. Y.

Order 78. BIGNONIA CEAE. Begonias.

Tecoma radicans. Trumpet-Creeper.

Catalpa speciosa. Catalpa. Indian Bean.

Order 80. ACANTHA CEAE. Acanthuses.

Ruellia ciliosa. P. White-hairy, 1 to 3 ft., leaves oval, sessile, 1 to 2 in. long; fls. 1 to 3 in an axil; corolla bell-shaped with a long, slender tube, 1½ to 2 times length of slender calyx, lobes, P. 1½ in. broad; Ju. Sept. Sandy places.

Dianthera. Americana. P. Water Willows. Growing in water; 1 to 3 ft., leaves long, narrow, acute; fls. in long spikes; P. W. Canal, Ottawa. Covell Creek.

Order 81. VERBENA CEAE. Verbenas. Vervains.

VERBENA Vervains. Calyx 5 toothed; corolla short tubular with a flat border unequally 5 cleft; fls. in spikes. bracted; leaves opposite.

V. officinalis. A. Branched; leaves cleft, sessile; fls. P. small in long slender spikes. 1 to 3 ft. Common.

V. urticaefolia. P. Tall, 3 to 5 ft., slender; leaves oblong-ovate, sharp-serrate, veiny; fls. W. small in very long spikes.

V. angustifolia. Leaves narrow-lanceolate, sessile, roughish, fls. P. in crowded spikes. Dry ground.

- V. *hastata*. Blue vervain. Tall, 4 to 6 ft. leaves lanceolate, toothed; fls. P. Roadsides.
- V. *stricta*. Hoary vervain. Whitish-hairy; leaves obovate, serrate, sessile; spikes thick, fls. P. to W. Sandy lands.
- V. *bracteosa*. Prostrate hairy, leaves cut and lobed. Fls. small, P. Sandy places.
- Lippia lanceolata*. Frogfruit. Slender, creeping leaves small, oblanceolate, deep G. serrate. Fls. in closely bracted heads, bluish W., $\frac{1}{4}$ in broad.
- PHRYMA. P. Lop-seed. Erect, branches slender, leaves ovate, coarse-toothed. Fls. P., reflexed in fruit.
- Q. *leptostachya*. Calyx strongly ribbed, fls. P. in a long slender spike.
- Order 82. LABIATAE. Mints.
Mostly herbs, stems square, leaves opposite and generally aromatic, corolla more or less 2 lipped, stamens 2 or 4 pairs, seeds 4 at bottom of calyx.
- Trichostema dichotomum*. False Pennyroyal.
- Isanthus caeruleus*. Much like Pennyroyal.
- Teucrium Canadense*. Damp places. Germander.
- Collinsonia Canadensis*. P. Horse-balm. Woods.
- MENTHA *viridis*, Spearment. Wet lands.
- M. *piperita*. Peppermint.
- M. *Canadensis*. Wildmint.
- LYCOPUS *Virginicus*. Bugleweed. Leaves more or less lobed; flowers small, white; 12 to 20 in. Wet lands.
- L. *sessilifolius*. L. Europeans 5th Ed. Water Horehound.
- Jh. L. *rubellus*.
- Jh. L. *sinuatus*.

- PYCNANTHEMUM. P. Erect, leafy, leaves narrow rigid, dark G. flowers in dense heads $\frac{1}{4}$ in. broad, W. Have a mint-like odor. $1\frac{1}{2}$ to 2 ft.; Ju. Aug. Dry grounds.
- P. lanceolatum. Heads downy.
 - P. linifolium. Smoother, leaves narrower.
 - P. muticum. Hoary, much branched.
 - P. muticum var. pilosum. Leaves thinner.
 - Calamintha glabella. P. Fls. P.; 1 to 2 ft.
 - Melissa officinalis. Balm. Lemon Balm.
 - Monarda fistulosa. Wild Bergamot. Fls. P. Rs. R., large.
 - Jh. M. punctata. Horse-mint. Fls. Y. P. spotted.
 - Blephilia hirsuta. P. Fls. small, B, P.
 - Lophanthus nepetoides. Giant Hyssop. Fls. G. Y.
 - Nepeta cataria. Catnip. In hedges and fences.
 - N. Glechoma. Ground Ivy. Gill over the ground.
- SCUTELLARIA. P. Skullcap. Calyx in fruit closed and helmet-shaped; in flower bell-shaped and 2 lipped. Damp woods and along streams.
- S. laterifolia. Mad-dog. Skullcap. Smooth. Wet places.
 - Jh. S. versicolor. Soft-hairy, somewhat sticky.
 - S. canescens. Much branched, 2 to 4 ft. Woods.
 - S. pilosa. Hairy, 1 to 3 ft. Dry places.
 - S. parvula. Small, 3 to 6; fls. B. Sandy lands.
 - Brunella vulgaris. Self heal. Fls. Vi. or Fl.
- Physostegia Virginiana. P. False Dragon-head. Lady in the Lake. Erect, tall, 2 to 4 ft. smooth; leaves lanceolate, serrate thickish, bright G. Fls. in long spikes Pi. P. spotted corolla 1 in. long. Wet places. A beautiful plant.
- P. intermedia. Slenderer, leaves narrower. Dry lands.
 - Marrubium vulgare. Horehound. Waste places.

Leonurus cardiaca. Motherwort. Calyx spiny.
Stachys aspera. P. Hedge-Nettle. Fls. P. or Rs.
S. glabra. Smooth. *Aspera* is rough.

Order 83. PLANTAGINACEAE. Plantains.

Plantago. Plantain. Leaves mostly radical, ribbed, petioled. Flowers in a long spike.

P. cordata. A large plant by streams.

• *P. major*. Common Plantain. Everywhere.

Jh. *P. lanceolata*. Hairy; scape grooved-angled. Common.

• *P. Virginica*. Small, 2 to 9 in. white-hairy. Sands.

• *P. pusilla*. Very small, 1 to 4 in., soft-hairy.

DIVISION III. APETALAE. Corolla wanting.

• Order 84. NYCTAGINACEAE. Four O'clocks.
 Stems with swollen joints, leaves opposite, entire.

Oxybaphus nyctagineus. Stem thick, forking; leaves ovate, acute, thick; early flowers have a colored calyx, later do not.

Order 85. ILLECEBRACEAE. Knotweeds.

Leaves opposite, entire with scarious stipules.

Anychia capillacea. Forked Chickweed.

Order 86. AMARANTACEAE. Amaranths.

Flowers in more or less rough spikes, short or long, G., R. or P. Often spiny. Very common.

• *Amaranthus paniculatus*. G. R. 3 to 6 ft. About gardens.

A. retroflexus. Pale G. Erect; fls. G.

A. chlorostachys. Greener and smoother.

A. hybridus. Smooth. Spikes less compact.

A. albus. Tumble weed. Pale G.; leaves small.

A. blitoides. Prostrate.

A. spinosus. Much branched, stem reddish.

Jh. *A. pumilus*. Prostrate; leaves fleshy.

Acnida. Much like *amaranthus* but stam. and pist.

flowers are on separate plants.

- A. tuberculata. *Montelia tamariscina*, Wood and of 5th Ed. Tall; 2 to 6 ft. Spikes slender, long. G. P. About Ottawa N. of canal.

Order 87. CHENOPODIA CEAE. Goosefoot or Pigweeds.

Plants more or less succulent, leaves alternate and often white-scurfy, without stipules; fls. very small.

- Cyclocloma platyphyllum*. A. Very branching; leaves W. G.; 6 to 20 in. W. of Glass Works, Ottawa, Twin Bluffs, River Bank near U. S. Silica Works. Came here since 1890.

Chenopodium. Leaves angular, more or less toothed.

- C. boscianum. Slender; leaves oblong; 2 ft.

- C. album. Lamb's Quarters. Leaves rhombic-ovate to linear.

- C. urbicum. Leaves triangular, toothed, pale G.

- C. hybridum. Leaves triangular, cordate, bright G., thin.

- C. glaucum. Spreading, mealy; leaves lobetoothed.

- C. Bonus Henricus. Decumbent; leaves triangular, pale G.

- C. Botrys. Jerusalem Oak. Sticky; leaves sinuate lobed.

Atriplex patulum. S. side hydraulic basin, E. end.

Salsola kali tragus. Russian Thistle. Ottawa about glass works and near N. end of Ill. bridge.

Order 88. PHYTOLACCA CEAE. Pokeweeds.

Phytolacca dicandra. Poke, Scape or Garget.

Order 89. POLYGONA CEAE. Buckwheats.

Stems with swollen joints, alternate, entire leaves with stipules sheathing the stem—an ocreae--above joints; fruit Br. or Bl. 3 or 4 angled.

- Rum ex. P. Dock. Sorrel. Tall, leaves large, usually thick., fls. G., in a large panicle. Fruit 3 angled.
- R. Britan nica. Leaves long-lanceolate, 1 ft. or more; 4 to 6 ft. Wet places.
- R. altis simus. Pale Dock. Gayish G., very smooth, 2 to 6 ft.
- R. cris pus. Curled Dock. Leaves narrow, margins crisped.
- R. obtusifolia. Bitter Dock, leaves broad.
- R. sanguineus. Veins of leaves red.
- R. acetosella. Horse Sorrel. Sorrel, small, 6 to 12 in., fls. red; sour.
- Polygonum. Knotweed. Smartweed. Leaves lanceolate, acuminate.
- P. aviculare. More or less prostrate, pale G.; leaves small, fls. W., stamens 8.
- P. ramosissimum. Tall, 2 to 5 ft., branching; leaves small, scattered.
- P. tenue. Stem angled, 1 to 1½ ft. Dry lands.
- P. lapathifolium. A. Stamens 6.
- P. lapathifolium var. incarnatum. Leaves large.
- P. Pennsylvanicum. Stamens 8; peduncles glandular. Moist places.
- P. amphibium. P. Grows in water. R.
- P. orientale. Princess Feather. P. Gardens.
- P. Persicaria. Leaves with a dark spot.
- P. hydropiperoides. Ditches and wet grounds.
- P. hydropiper. Water pepper. Fls G. and Rs.
- P. arifolium. Stem prickly.
- P. sagittatum. Prostrate, square, rough.
- P. convolvulus. Prostrate or climbing. Fls. W.
- P. dumetorum. Fruit winged at angles.
- Fagopyrum esculentum. Buckwheat.
- Podostemon ceratophyllus. River weed. In river.

Order 91. ARISTOLOCHIA CEAE, Birthworts.
As arum Canaden se. Wild Ginger. Hillsides.

Order 94. Thymela ceae.

Dir ca palus tris. Moosewood. Leatherwood. Woods.

Order 97. Santala ceae. Sandalwoods.

Coman dra umbella ta. Fls. in umbels G. W. 6 to
10 in.

Order 98. EUPHORBIA CEAE. Euphorbias.

Juice milky; leaves generally opposite or in
whorls; stamens and pistils separate on different
or the same plant. Fls. in a cup-like involuere
in umbels. Seeds 3 to 6. at top of a short stem.

EUPHOR BIA macula ta. Prostrate, slender, hairy.

E. humistra ta. Procumbent, larger than maculata.

E. Preslii. Branched. spreading, 1 to 2 ft.

E. margina ta. Floral leaves white edged.

E. corolla ta. Involuere white-fringed, showy.

E. denta ta. Erect, hairy, 1 to 1½ ft.

E. heterophyl la. Upper leaves red-edged.

E. obtusa ta. A. Rod warty; 1 to 2 ft. Damp
woods.

E. Cyparis sias. Leafy; leaves linear, stiff. 6
to 10 in.

E. commuta ta. Umbel 3 rayed; 6 to 12 in.

Phyllan thus Carolinen sis. A. Low, slender.

Jh. Croton capita tus. Densely soft-woolly.

Cro tonop sis linea ris. Silvery-hoary above.

Acaly pha Virgin ica. Three seeded mercury.

Ricin us commu nis. Castor Oil plant.

Order 99. URTICA CEAE. Nettles.

UL MUS fulva. Slippery or Red Elm.

U. American na. White Elm.

Cel tis occidenta lis. Sugarberry. Hackberry.

Can nabis sativa. Hemp. Cult. grounds.

Hum ulus lup ulus. Hop.

Maclura aurantia ca. Osage Orange. Bois d'arc.
 MOR US *rubra*. Leaves large, ovate, serrate rough
 above, on young shoots some are 2 or 3 lobed,
 fruit a long, black berry.

M. alba. Leaves small, smooth, fruit small, W.

URTI CA. *gra cilis*. Nettle. Along fences.

U. dioica. Stinging Nettle. Very bristly.

Lapor tea Canadensis. Wood Nettle.

Pilea pumila. Stems shining, clear.

Jh. *Parieta ria Pennsylvan ica*. Shaded. rocky
 places.

Order 100. PLATANA CEAE. Plane Trees.

Plat anus occiden tal is. Sycamore. Buttonwood.

Order 101. JUGLANDA CEAE. Walnuts.

Jug lans ciner ea. Butternut, White Walnut.

J. nig ra. Black Walnut. Along streams.

Car ya al ba. Shell-bark or Shag-bark Hickory.

C. Sulca ta. Kingnut. Not common.

C. amara. Bitternut, Pignut.

Order 103. CUPULIF ERAE. Oaks.

Bet ula papyrif era. White Birch. Common.

Al nus serrula ta. Smooth Alder.

Cor ylus America na. Hazlenut. Common.

Os trya Virgin ica. Hop, Hornbeam, Ironwood.

Carpi nus Carolina na. Blue or Water Beech.

QUER CUS *alba*. White Oak.

Q. macrocar pa. Bur Oak, Mossy-cup Oak.

Q. lyra ta. Over-cup Oak, Swamp Post Oak.

Q. bic olor. Swamp White Oak. Wet places.

Q. pri nus. Chestnut Oak. Not common.

Q. ru bra. R. Oak Acorn, broad and short.

Q. coccin ea. Sc. Oak. Leaves scarlet after frost.

Q. coccin var. tinctor ia. Black oak.

Q. ni gra. Bl. Jack. Barren Oak. Sandy lands.

Q. imbrica ria. Laurel or Shingle Oak. Ra.

Castanea sativa. Chestnut. In plantations.

Order 104. SALICACEAE. Willows.

SALIX nigra. Black Willow. 20 to 25 ft. Streams.

S. fragilis. Twigs Y. W. or Cr. 60 ft.

S. alba. White Willow. 50 to 80 ft.

S. Babylonica. Weeping Willow. 50 ft.

S. longifolia. A shrub along streams.

S. rostrata. A small tree.

S. discolor. Pussy Willow. Several varieties. 4 to 10 ft.

S. humilis. Prairies, 3 to 8 ft.

S. petiolaris. Stems red. Shrub.

POPULUS. Poplar, Aspen, Cottonwood.

P. alba. White Pop. Leaves whitish.

P. tremuloides. Quaking Asp, Aspen.

P. gradidentata. Leaves round-toothed.

P. balsamifera. Aments large, R.

P. balsamifera var. *condicans*. Balm of Gilead.

P. manilifera. Cotton Wood.

P. dilatata. Lombardy Pop. Old places.

Sub Class II. GYMNOSPERMAE. Seeds naked.

Order 107. CONIFERAE. Pines, Conifers.

Pinus strobus. White Pine.

P. resinosa. Red Pine.

P. Austriae. Austrian Pine. Plantations.

Abies balsamea. Balsam Fir. Plantations. Cones P.

Larix Americana. Larch Tamarak.

L. Europaea. European Larch. Both species are sometimes planted.

Thuja occidentalis. Arborvitae, White Cedar.

Juniperus. Virginia na. Red Cedar. Savin.

Taxus. Canadensis. American Yew. Ground Hemlock.

The last three are found along the bluffs of the Ill. especially W. of Ottawa.

CLASS II. MONECOTYLEDONOUS or ENDOGENOUS PLANTS.

Stems with no distinction of wood pith and bark; leaves mostly parallel veined and sheathing at base, generally alternate. Parts of the flowers usually in 3's. Seeds coming up with a single leaf or cotyledon.

Order 108. HYDROCHARIDA CEAE. Frog's Bits.

Elodea canadensis. Waterweed. *Anacharis canadensis* of 5th Ed. Slow streams and ponds.

Vallisneria spiralis. Tape grass, Eel-Grass.

Order 110. ORCHIDA CEAE. Orchids.

Flowers perfect, irregular and often of strange and striking forms. Roots often tuberous.

LIPARIS. Truagblade. Leaves 2; flowers several, G. P. on a scape. Moist lands.

L. liliifolia. Leaves ovate; fls. Br. P.

Aplectrum hepaticum. Putty-root, Adam and Eve. Leaf, one only, oval, veined, G. above, Pi. below; fls. G. Br. Woods.

SPIRANTHES. Ladies' Tresses. Stem leaves small; fls. W., winding about stem forming a spike.

S. cernua. Leafy; fls. fragrant. Wet lands.

S. gracilis. Small, smooth. Hilly Woods.

Goodyera pubescens. Leaves netted with white; fls. G. W.; 6 to 12 in. Deer Park Tp. River bluffs.

Calopogon pulchellus. Leaf one, grass-like scape bearing several P. fls., 10 to 12 in. Bogs. Rs.

Pogonia ophioglossoides. One large narrow-oblong leaf and a smaller one above it. fl. generally one, P.

In the following the flowers are spurred. All are rare.

- Or *chis spectabilis*. Leaves 2 ovate on the ground; fls. in a spike, P.; 3 to 7 in. Woods Ra.
- Jh. *Habenaria bracteata*. Fls. 10 to 30 G.; spur W.
- H. *leucophaea*. Lip of fl. fringed, W. Wet places.
- H. *psychodes*. Lip fringed, P.
- H. *fimbriata*. Fls. fewer and longer than in last.
- CYPRIPEDIUM. Ladies' Slipper, Mocassin Flower.
Upright, downy; fls. large, lip pouch-like.
- C. *canadum*. Flowers small, W., Ra.
- C. *parviflorum*. Low; fls. Y.
- C. *pubescens*. Fls. larger, Y.
- C. *spectabile*. Fls. large, W., blotched with P.
- Order 113. IRIDACEAE. Irises. Fleur de lis.
Iris versicolor. Blue Flag. Common.
Belamcanda chinensis. Blackberry Lily.
Sisyrinchium. Blue-eyed Grass.
- S. *angustifolium*. Stems flat, 4 to 12 in. B. or W.
- S. *aniceps*. Taller and usually branching. Both in meadows.
- Order 114. AMARYLLIDACEAE. Amaryllids.
Hypoxis erecta. Leaves grass-like; Y.
- Order 115. DIOSCOREACEAE. Yams.
Dioscorea villosa. Wild Yam Root.
- Order 116. LILIACEAE. Lilies.
Flowers regular, symmetrical and with 6 stamens.
- SMILAX. Green-brier. Usually climbing; fls. Y. G., in umbels.
- S. *herbacea*. Carrion-flower. Tall, 3 to 15 ft.
- S. *ecirrhata*. Erect, $\frac{1}{2}$ to 3 ft.
- S. *hispida*. Stems prickly.
- Allium*. Onion, Garlic. Strong-scented plants.
- A. *tricookum*. Wild Leek. Leaves withering before the flowers appear; fls. G. W., in a close

umbel on a leafless scape; J.

A. *ceruum*. Wild Onion. Common.

A. *Canadense*. Wild Garlic.

B. A. *vineale*. One specimen reported.

Camasia Fraseri. Camass. Wild Hyacinth. Fls. B.

Muscari botryoides. Grape Hyacinth, from gardens.

Hemerocallis Fulva. Day Lily. Fls. large, Or.
From gardens.

Polygonatum biflorum. Solomon's Seal. Fls. in
axils of leaves, G. W. Along streams.

P. *gigantum*. Great Solomon's Seal.

Asparagus officinalis. Asparagus. From gardens.

Smilacina racemosa. Fls. in terminal cluster; W.
Moist places.

S. *Stellata*.

Maianthemum Canadense. Low, 3 to 5 in. Rocky
woods.

Uvularia perfoliata. Bellwort. Fls. Y.

U. *grandiflora*. Both around wooded hills.

Erythronium Americanum. Adder's Tongue. Y. Ra.

E. *albidum*. Fls. W. Common.

LIL IUM. Lily. Flowers 6 parted, more or less
either bell-shaped or trumpet-shaped, large and
showy.

L. *Philadelphicum*. Wood Lily. Fls. 2 to 4; Or.
and P.

L. *Superbum*. Turk's Cap, Meadow Lily. Fls.
3 to 20, Y., Or. and P.; 2 to 6 ft.

TRIL LIUM. Erect, stem with 3 leaves; fls. 3 parted
solitary. Woods.

T. *sessile*. Fl. sessile, P.

T. *recurvatum*. Sepals recurved, fls. P.

T. *erectum*. Fruit ovate, reddish; Fl. P. or W.

T. *ceruum*. Leaves large; fl. W. 12 to 15 in.

Order 117. PONTEDERIA CEAE. Pickeral-weed.
Pontederia cordata. A water plant; fls. P. in a
spike.

Heteranthera graminea. Mud-Plantain.

Order 118. XYRIDA CEAE. Yellow-eyed-grass.
Xyris flexuosa? Seen several years since in a
swamp on Reddick farm. Believed to be ex-
tinct in that locality.

Order 120. Commelina ceae. Spiderworts.

Tradescantia Virginica. Flowers B. Common.

Order 121. JUNCA CEAE. Rushes.

Juncus effusus. Common Rush. Stems leafless.

J. va seyii. Leafy at base.

J. tenuis. Leaves flat or channelled.

J. acuminatus. stems in tufts; leaves about 2.

J. nodosus. Leaves 2 or 3, recurved.

J. nodosus var. megacephalus. Stout.

Luzula vernalis. P. Leaves flat, hairy; 6 to 9 in.
Woods.

Order 122. TYPHA CEAE. Cat Tails.

Typha latifolia. P. Cat-tail. Marshes.

Sparganium. Bur-reed. Marshes.

S. eurycarpum. Fruit hard, bur-like.

Order 123. ARA CEAE. Arums.

Arisaema triphyllum. Indian Turnip. Leaves 2
each of 3 leaflets.

A. Dracontium. Leaf, one of 7 to 11 leaflets.

Symplocarpus foetidus. Skunk cabbage. Strong
scented.

Order 124. LEMNA CEAE. Duckweeds.

Spirodelapolyrrhiza. Small, floating.

Order 125. ALISMA CEAE. Water Plantains.

Alisma plantago. Water Plantain. Fls. W. small.

Sagittaria variabilis. Arrow head. Fls. W. large.

S. graminea. Leaves usually long-ovate.

Jh. *S. calycina*. Scape weak, sepals erect.

POTOMAGE TON. Pondweed. Stems rooting, leaves 2 ranked, alternate, or nearly opposite, round-ovate to linear.

P. natans. Leaves long, petioled, elliptical.

P. fluviatilis. Leaves of Tuckerman. Leaves long, elliptical.

P. perfoliatus. Leaves roundish. In Ill. river.

P. pauciflorus. Leaves narrow, linear. Ill. R.

P. pusillus. Stem slender, flattish. Ill. R.

P. pectinatus. Stem thread-like; leaves very narrow. Ill. R.

Najas flexilis. Naiad. Stems slender, leaves narrow. Slow moving waters.

Order 128. CYPERACEAE. Sedges.

Coarse grass-like plants with solid jointed triangular stems; flowers in heads, spikes or umbels. The stems are called culms.

Cyperus. *P.* Galingale. Umbel rays unequal.

C. flavescens. Culms 4 to 10 in.; rays 2 to 4.

C. diandrus. Rays 2 to 5, very short.

C. acuminatus. Slender, 3 to 12 in.

C. filiculmis. Slender, wiry, 8 to 15 in.

C. strigosus. Stout, 1 to 3 ft.

C. speciosus. 5 to 20 in.; rays crowded.

Dulichium. *P.* Culm not branched, round, hollow.

D. spathaceum. Spikelets flattened, sessile.

ELEOCHARIS. *P.* Spike Rush. Culms in groups, leafless, sheathed at base, each with a single terminal head.

E. palustris. Nearly round, striate, 1 to 5 ft.

E. tenuis. Hair-like, 4 angled, 1 ft.

E. compressa. In tufts, flat, striate.

E. acicularis. Hair-like, 2 to 8 in., angular.

SCIR PUS. Bull Rush, Club Rush. Spikelets several.

S. pungens. Sharply 3 angled, 1 to 4 ft.

S. laeus tris. Round; leafless, 3 to 9 ft.

S. atro virens. Leafy, 2 to 5 ft.

ERIOPH ORUM. Heads W., cottony when ripe.

E. linea tum. Triangular, leafy, 1 to 3 ft.; leaves flat.

E. polystachyon. Rigid, 1 to 2 ft., somewhat 3 sided.

Hemicarpha subsquarrosa. Erect, 1 to 5 inches; spikelets 2 to 3.

CA REX. P. Sedges. Coarse, grass-like plants, generally growing in wet or at least damp lands. Stems jointed, mostly solid and 3 angled, leafy or not; fls. in spikes, of two kinds both in same spike or in separate spikes, on same plant or on different plants. Fruit a hard seed in a sac-like envelope.

C. lu rida. Obtusely angled, smooth; leaves long.

C. hystricina. Slender, sharply 3 angled.

C. vesti ta. Stout, stiff, sharply angular.

Jh. C. stria ta. Sharply angled, longer than leaves.

C. filiformis. Very slender, roundish, smooth.

C. filiformis var. latifolia. Rough; leaves flat.

C. trichocarpa. Tall, sharp angled, rough.

C. trichocarpa var. imberbis. Smaller. Dry places.

C. trichocarpa var. aristata. Stout, leaves hairy.

C. fusca. Bexbaunii of 5th Ed. Sharp angled, roughish above; leaves very narrow, rough.

C. stricata. Tall, slender, in tufts, sharp angled, rough.

C. grisea. Stout; leaves one-sixth in. wide; bracts

leaf-like. longer than stem.

- C. *granula ris*. Pale colored; 8 to 24 in.; bracts broad, spreading.
- C. *fla va*. Very slender, stiff, straight, yellowish, 1 to 2 ft.
- C. *fla va* var. *viridula*. C. Oedere of 5th Ed.
- C. *fla va* var. *latifolia*. Leaves broader, bracts very broad.
- C. *laxiflora*. Slender; leaves soft, one-sixth inch or less wide.
- C. *platyphyla*. Low, 6 to 12 in., leaves $\frac{1}{2}$ in. wide, 1 ft. long.
- C. *plantaginea*. Leaves broader; dark G. Canyons.
- C. *varia*. In tufts with runners, 6 to 15 in. Spikes G. Woods.
- C. *Pennsylvanica*. Small, 6 to 10 in. Spikes Br.
- C. *pubescens*. Straight, 1 to 2 ft. soft-woolly.
- C. *stipata*. Stout, 1 to 3 ft., sharp angled; in clumps.
- C. *decomposita*. Nearly round, $1\frac{1}{2}$ to 3 ft., deep G.
- C. *teretiuscula*. Slender, obtuse angled, rough at top.
- C. *vulpinoides*. Rather stiff, rough, at least above.
- C. *Sartwellii*. Leaves flat, with long, slender points.
- C. *rosea*. Slender, weak. erect, 1 to $1\frac{1}{2}$ ft.
- C. *sparganoides*. Stout, stiff, 2 to 3 ft.; leaves $\frac{1}{4}$ in. wide.
- C. *cephalophora*. Erect, pale G.; leaves narrow.
- C. *Deweyana*. Leaves flat, soft, shorter than stem.
- C. *bromoides*. Weak, in dense clusters.
- C. *siccata*. Has creeping as well as erect stems.
- C. *scoparia*. Head short, thick, tawny or Br.
- C. *adusta*. In dense tufts; heads heavy, silver Br.

C. straminea. Spikes 3 to 8, small, globular, tawny.

Order 129. GRAMINEAE. Grasses. Culms.

Stems usually hollow, jointed and closed at the joints; leaves 2 ranked, the base sheathing the stem, sheath split on side opposite blade; leaves long, narrow--linear--acute, sometimes ending in a long, almost thread-like point; margins sometimes revolute; flowers consisting of some scale-like leaflets, the 2 outer--glumes--the palea.

Spartina cynosuroides. Marsh Grass, Cord Grass. A tall, coarse grass, 2 to 6 ft., leaves 2 to 4 ft. long. Wet places.

Panicum. Panic Grass. More or less hairy; leaves broad; flowers in a spreading, slender, branched panicle.

P. glabrum. Spreading or erect, 5 to 12 in.

P. sanguinale. Crab Grass. Finger Grass.

P. capillare. Old Witch Grass. Variable.

P. autumnale. P. Leaves small, narrow, edges hairy.

P. agrostoides. culms flattened, erect.

P. virgatum. Tall, 3 to 5 ft.; leaves long, flat.

P. latifolium. Leaves clasping. Moist woods.

P. clandestinum. Leafy to the top.

P. nitidum. Leaves thick.

P. depauperatum. Branched from base or not.

P. dichotomum. Leaves clustered near ground.

P. laxiflorum. Flowers larger than in the last.

P. Crusgallii. Barnyard Grass. Oplismenus, Wood. Also known as Cock Spur, Barn and water Grass,

P. Crusgalli var. hispidum. Very bristly.

Setaria. Bristly Fox Tail or Barn or Pigeon Grass.

Heads long, round and very bristly.

S. glauca. Pigeon Grass. Spike tawny. Com.

S. viridis. Spike G., cult. grounds.

S. Italica. Millet Hungarian Grass.

Cenchrus. Hedgehog or Bur Grass or Sand Bur.
Sandy lands.

C. tribuloides. Known by its bur-like seeds.

Leersia Virginica. Cut, Scratch or White Grass.
Leaves and stem prickly; plant whitish.

L. oryzoides. Rice, Cut Grass.

Zizania aquatica. A. Water or Indian Rice. 3
to 9 ft. Water.

Andropogon furcatus. Coarse, rigid, grass.

A. scoparius.

Chrysopogon nutans. Indian Grass, Wild Sorghum.

Phalaris canariensis. Canary Grass. Ribbon Grass.

Anthoxanthum odoratum. Sweet Vernal Grass.
Sweet scented.

Hierochloa borealis. Vanilla or Seneca Grass. 1
to 2 ft.

Aristida tuberculosa. Three-awned Grass.

Stipa spartea. Porcupine Grass.

Muhlenbergia Mexicana.

M. sylvatica.

M. diffusa.

Phleum pratense. Timothy. Herd's Grass.

Alopecurus pratensis. Foxtail Grass. Spike cylindrical, soft and dense.

A. geniculatus var. *aristulatus*. In water and
Wet places.

Sporobolus asper.

S. vaginaeflorus.

S. heterolepis.

S. cryptanthus.

- Agrostis alba*. White Bent-Grass.
A. alba var. *vulgaris*. Red Top.
A. scabra. Hair Grass.
Calamagrostis Canadensis. Blue joint.
C. longifolia.
Danthonia spicata. Wild Oats.
Cynodon Dactylon.
Bouteloua racemosa. P. Spikes drooping.
Phragmites communis. P. Tall, stout, with running roots.
Eatonia obtusata. P. Stems in tufts; sheaths some downy.
Eragrostis repens. Creeping. By streams.
E. major. Spreading. Sandy lands.
E. pilosa. A. Gravelly places,
E. Franckii. Branched and spreading.
E. capillaris. Panicle large.
E. pictinacea. Dry sandy lands.
Melica mucca. Leaves flat, soft.
Diarrhena Americana. Smooth; roots with runners.
Dactylis glomerata. Orchard Grass.
Poa compressa. Wire Grass. Running; stems flattened.
P. pratensis. June Grass, Spear Grass.
P. Sylvestris. Stems flattish; branches in 5's or more.
Glyceria Canadensis. Stout, 2 to 3 ft.; leaves long, roughish.
G. nervata. Branches become drooping.
B. G. fluitans. Leaves short, broad, smooth.
Festuca tenella. Flowers in one-sided, paniced spikes.
F. elatior var. *pratensis*.
Brodiaea inermis. Wild Chess Cheat.
B. secalinus. Cheat or Chess

- Jh. *B. racemosus*. Nearly smooth.
B. ciliatus. P. Tall, fls. hairy.
Agropyrum repens. Couch, Quitch or Quick Grass. *Triticum repens* of 5th Ed.
 Jh. *A. violaceum*. Spike tinged with Vi.
Hordeum jubatum. Squirrel Tail Grass. Heads very bristly.
H. pratense. Bristles short.
Elymus Virginicus. Erect, 2 to 3 ft., spike dense.
E. Canadensis. Spike nodding.
E. Canadensis glaucifolium. Pale G.
E. striatus. Woolly, spike dense, thick.
E. striatus villosus. Flowers very hairy.
Asprella hystrix. Bottle-Brush Grass. *Gymnostichum hystrix* of 5th Ed.

SERIES II.

CRYPTOGA MOUS or FLOWERLESS PLANTS.

Plants without stamens or pistils and producing instead of seeds small one-celled bodies called spores.

CLASS III. ACROGENS.

Plants with a distinct stem growing from the summit and usually having leaves.

SUB-CLASS I. PTERIDOPHYTES.

Order 130. EQUISETACEAE.

Equisetum. Horse tail, Scouring Rush. Stems jointed, angular or grooved, rough, more or less branched.

E. arvense. Low, 8 to 12 in., much branched.

E. limosum. Branches, upright if any.

E. hyemale. Few or no branched; 1½ to 4 ft.

Jh. *E. laevigatum*. Slender, pale G.

Order 131. FILICES. Ferns.

Polypodium vulgare. Polypod. Fruit dots round.

Adiantum pedatum.

Pteris aquilina. Brake. Found on leaf 2 to 3 ft. long.

- Pellaea gracilis*. Small, gray G., 2 to 4 in.
- Asplenium ebe neum*. Fruit dots long, straight or curved.
- A. *angustifolium*.
- A. *thelypteroides*.
- A. *Filix-foemina*.
- Camptosorus rhizophyllus*. Walking Fern.
- Phegopteris polypodioides*. Fruit dots small, round.
- P. *hexagonoptera*. Fronds triangular, wider than long.
- Aspidium Thelypteris*. Fruit dots opening by margin.
- A. *spinulosum*. Leaves spiny-toothed.
- A. *Goldianum*. Frond broad-ovate.
- A. *marginale*. Fruit dots close to margin.
- A. *acrostichoides*. Fruit on upper end of frond.
- A. *lonchitis*. Frond long, narrow, rigid.
- Cystopteris bulbifera*. Fronds narrow, long-pointed.
- C. *fragilis*. Fronds shorter.
- Onoclea sensibilis*. Fruit on a separate frond.
- O. *Struthiopteris*. *Struthiopteris Germanica* 5th Ed.
- Woodsiailvensis*. Small, tufted plants. Rocky places.
- W. *obtusa*.
- Osmunda regalis*. The largest of our ferns. Very rare.
- O. *claytoniana*. Common.
- O. *cinnamomea*. Woolly.
- Order 132. OPHIOGLOSSACEAE.
- Botrychium Virginianum*. Moonwort. Damp Woods.
- B. *lanceolatum*. Damp wood.

Order 133. LYCOPODIA CEAE. Club Mosses.
Rare.

- Jh. *Lycopodium lucidulum*. Canyons. Very rare.
L. *annotinum*. Canyons.
L. *clavatum*. Canyons.
Selaginella rupestris. Sandy, rocky lands.
S. *apua*.
Jh. *Isoetes melanopoda*.
-

HESPERIS. Rocket, Dames Violet.

- H. *matronalis*. Tall, 2½ to 3½ ft. Stout; leaves lanceolate, serrate, acuminate, mostly petiole; flowers purple, fragrant; Sometimes found by roadsides and in fields. Escaped from gardens.

SISYMBRIUM. Hedge Mustard.

- S. *officinale*. Upright, branching, tall, 1 to 3 ft., leaves lobed, pods upright, pressed close to stem; flowers small, Y. Waste places.
S. *canescens*. Leaves finely divided; Y., Apr. 3 to 12 in.
S. *Thaliana*. Leaves small, roundish, slightly toothed, hairy; 2 to 6 in. high; W.; Ap. Sandy lands.

THELYPODIUM *pinnatifidum*. Smooth; often branched, root leaves cordate on slender petioles, stem leaves clasping, ovate-oblong sharply and doubly serrate, 2 to 6 in. long, lower ones on winged petioles, sometimes bearing one or two pairs of lateral lobes; flowers P.; M. Ju. Banks of streams. *orchis hesperoides* of 5th Ed.

BRASSICA. Cabbage Mustard.

- B. *sinapistrum*, Upper leaves barely toothed; pod knotty; Y. on green fields. A troublesome weed.

B. alba. White Mustard. Pods bristly; leaves all deeply toothed.

B. nigra. Black Mustard, Pods 4-cornered; leaves with a large terminal or end lobe and smaller lateral or side Y. Becoming common in cultivated fields.

Capsella. Shepherd's Purse.

Bursa pastoris. Hoary green root leaves deeply toothed, stem leaves arrow-shaped; pod small, triangular; flowers W. small. An exceedingly common weed.

LEPIDIUM. Peppergrass.

L. Virginicum. Pod roundish with a notch at top; upper leaves narrow, entire, lower deeply toothed, all tapering at base, W., 6 to 12 in. Common; grayish G.

Order 11. CAPPARIDACEAE. Capers.

POLANISIA graveolens. Leaves 3 narrowly-oval leaflets, bright green, sepals 4; plant hairy, clammy; flowers small, calyx P., petals Y. W. Has a strong pungent smell. Gravelly, sandy places, along streams; 8 to 18 in. Pods short and thick.

CLEOME. Petals with claws, entire; pod long, slender, many seeded; leaves 3 foliate. Fls. Rs. or W.

C. integrifolia. Calyx 4 cleft, petals with short claws, leaflets narrowly lanceolate to oblong; 2 to 3 ft. We saw a few specimens of this plant S. W. of the C. B. & O. depot, South Ottawa, three or four years ago, have not seen it since.

Order 13 CISTACEAE. Rock Roses.

HELIANTHEMUM. Canadense, erect, leafy, leaves long, oval, nearly sessile, hairy, Y. Opening in the morning and closing generally before

noon, 1 in. dia.; Ju. Later the flowers have no petals. 6 to 15 in. Dry sandy loams.

LECHE A. Minor erect, with numerous slender, spreading branches, leaves linear, flowers small. brown, in loose racemes, 8 to 12 in., leaves very narrow, $\frac{1}{2}$ in. long, hairy.

Order 14. VIOLA CEAF. Violets.

Herbs with an irregular 5 petaled corolla, one of the petals more or less spurred at base, stamens 5 close around the ovary and sometimes united. Leaves alternate with stipules.

VIOLA. P. Violets. Hearts Ease.

Sepals forming ears; petals unequal, the lower one-spurred at base; stamens 5 closely surrounding the ovary or united.

V. pedata. Birdfoot-Violet. Leaves 3 to 5 parted, lateral divisions 2 to 3 parted. All long, narrow, often wider at apex than at base and sometimes toothed; flowers large, 1 in. broad, pale to deep lilac or blue. May. Sandy banks.

Var. bicolor. The two upper petals deep V. and velvety.

V. pedatifida. Leaves all palmately 5 to 7 parted; divisions 2 or 3 cleft; lobes linear; flowers large, blue. Dry soils.

V. palmata. Common Blue Violet. Leaves roundish-cordate, crenate; sides rolled inward when young, later often lobed, the lobes obovate to linear; B. Poor lands.

Var. cucullata. Later leaves not lobed.

V. sagittata. Arrow-Leaved Violet. Leaves long, obtuse, eared at base, dentate. Sometimes arrow-shaped, etc., on more or less margined petioles; flowers $\frac{1}{2}$ in. broad. P. B. Dry lands.

V. lanceolata. White Violet. Lance-leaved violet.

Leaves long, narrow, obtuse, often erect; petiole long margined; W. M. and Sept. This plant blooms both spring and fall, but not through the hot weather. Moist, sandy lands.

- V. pubes cens. Yellow Violet. Downy Yellow Violet. Soft-downy, branching, 8 to 12 in. high leaves broad-cordate, toothed, acute; fls. Y. veined with P.; fruit oblong, downy. Woods.

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ADDENDA.

The Salt Marsh is a swale, now drained, situated about 5½ miles southwest of Ottawa at the foot of the Illinois bluffs. A salt spring exists here and an artesian well bored some thirty years ago, about forty rods southwest of Mr. Delbridge's residence, furnishes a considerable volume of salt water. The water is not salt enough to be of value as a source of salt. The vegetation of the vicinity presents some brackish water features.







