THE FLORA OF THE RIGHT OF WAY OF THE ILLINOIS CENTRAL RAILWAY:

Waddams to East Dubuque.

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The author has traversed various portions of the territory covered by this paper, and during two summer vacations, walked the line from Waddams to East Dubuque, and from East Dubuque to Waddams.

It is to be taken for granted that this trip of about fifty miles was not made in one day, but, as it were, by the relay method. To illustrate the procedure, an early morning train was taken to Portage, some 16 miles from East Dubuque, and from 9 to 4 occupied in walking this portion. Another time, the Burlington train dropped three of us at Galena Junction (just across the Galena River from Portage), at 3:30 A. M., and our trip then extended until darkness overtook us in the outskirts of the western terminus; so by similar stages, back and forth, at various seasons, the ground has been thoroughly explored.

A somewhat extended statement is necessary to give a clear idea of why this stretch of railway was taken as a plant survey area. The Illinois Central was built from Freeport to East Dubuque in and near the year 1858, long before much of the land was under cultivation, and while 90 percent of the forest lands were as yet uncut. This one factor accounts for such features as small areas of "Original Prairie", something very hard to find in these days—undisturbed and unpastured *marsh lands*—bits of *original cliff* and steep *ravine sides*—*slough* remnants on the Mississippi bottoms—a portion of a western sandy plain epitomized in N. W. Illinois by a northward extension of the noted Sand Prairie of Jo Daviess—Carroll county.

Along the Galena and Mississippi Rivers are numerous places where deep and rugged ravines, and great jumbled rock masses or cliffs afford for all time, havens of refuge for many rare plants, simply because the section men, however laudable their desire may be to keep neat and clean the right of way, cannot mow or burn such spots. This

burning business is a dire catastrophe for many plants. The writer tried to induce the Illinois Central in the days of Mr. Wallace, to permit certain *placarded* areas to go unmowed and unburnt. The Railroad's answer was "No", because of fire hazard to surrounding farm crops. Certain of the marshes and ponds, and slough margins are too wet either to mow or burn. Here then, are the last stands of many notable plants. Long may it be before the ponds dry up.

Waddams at our eastern limit, is on the highest peak of the right of way, something like 1014 feet in elevation, and this "1000 feet" continues for some seven miles to Warren. The surrounding region is Glacial Drift, with many undrained prairie marshes, small ponds and with a gently rolling surface. Some five miles to the west, between Nora and Warren, the driftless area is entered. This first section is entirely prairie, and contains some ten restricted areas that may justly be termed "original."

From the margin of the Drift to the vicinity of Apple River, the marginal region of the Driftless Area is passed over. The land is high and rolling, with numerous hollows and from the earliest days, was almost entirely without trees, except along the creeks, with an elevation well above 900 feet. There are some high dry knolls west of the head waters of Clear Creek, with the bed rock but a few feet below the surface. The railway cuts miniature canyons through this limestone.

From Apple River west for some distance, wooded areas occur, succeeded by more open country which culminates in the famous Law's Cut, a mighty gouge in the Maquoketa Shales. Before reaching the cut, the small west branch of Apple River is crossed. This occupies its preglacial channel in a broad flat valley. We are now fairly in the hill land of Mill creek, Hell's Branch and East Fork of the Galena River and down the last named stream, in tortuous course, midst ever heightening hills, the road wends out upon the alluvium of Galena River, past the ancient lead mine city of Galena on its bluffs and slopes and with one last swinging curve out to the bottom lands of the Mississippi.

From Portage to East Dubuque, the towering bluffs and cliffs are on the right, broken by three river valleys; and to the left, the sloughs, bayous, swamps, bottoms and waters of the great river. So narrow is this strip of land in places that the two other railway lines run their trains over the Illinois Central tracks, there being no room for more. Beyond Portage are many steep wooded slopes abutting on the right of way, numerous ravines, and for some distance, a wonderful palisade of towering lime stone cliffs. After crossing the Little Menominee River, the double tracks separate, the south or east bound passing through the sandy barren before mentioned, joining some two miles east of the western goal. From start to finish, the rails have pursued every direction of the compass except north and east, thus giving every manner of exposure. With the exception of about three miles, the whole distance has been in Jo Daviess Co., and for four miles, just south of the Illinois-Wisconsin Line.

With the above as a working stage, let us investigate the plants of the right of way. The author has a list of 1211 plants found in the county, every part having been repeatedly covered. On the area under consideration, 605 species have been recorded, or exactly one-half lacking one. Truly a remarkable showing.

It may be of interest to tabulate a few groups before considering some of the rarer and more choice forms that here are finding their last hope of existence in the whole county.

There are 110 examples of good and genuine weeds. This is no slander upon the zeal of our section men, for be it known, there is no place like a railway for such an exhibit. Many of these are tramps, pure and simple, and lead a precarious life, season by season, each year with a somewhat different combination. Such are the three wild four o'clocks, (Oxybaphus); numerous spurges (Euphorbia); the lance-leaved sage (Salvia lancifolia); two Chenopodiums, the Jerusalem oak and Mexican tea, the Cotton plant, Silver orach (Atriplex argentea); Flax, rape, turnip, wheat, oats, rye, barley, and alfalfa represent our cultivated plant group. Cow-herb (Vaccaria) is a showy example of a tramp weed.

Among these tramps are a few that cannot be considered weeds, at least with us. The western gum weed or tar weed (Grindelia squarrosa) is found here and there; the showy evening primrose (Oenothera speciosa) rarely occurs; the hoary night-shade (Solanum elaeagnifolium); Froelichia; Scarlet gaura (Gaura coccinea); the wild potato vine (Ipomoea pandurata); Petunia; tomato; hop clover (Trifolium procumbens) are tramp plants of this character.

To summarize further, we find:

17	ferns
100	grasses
70	sedges
110	weeds
35	water plants
100	composites or members of the Aster family
40	shrubs
133	other plants
605	

Fifty-five species of trees adjacent to or leaning over the line fences may be referred to. These cannot perhaps be included in actual right of way plants but would be there but for the hand of man.

The ferns are found almost exclusively on the rocky portions of the right of way from Warren west. The rock brake (Pellaea) is more and more finding such rock cuts congenial dwelling places. Here also, the Woodsia thrives, and the dainty and interesting bulblet fern (Cystopteris). On the great rock-fragments the walking fern is occasional, and the ostrich fern forms small colonies on the low alluvium of creek borders. The flowering fern is at home on shaded banks and the very rare Feei cliff fern (Cheilanthes Feei) is overlooked on sun exposed cliffs.

The grasses and sedges are very abundant on all the marshy and prairie portions, as well as in the shade of the Mississippi bluff woods. There are 53 species of the genus Carex, 10 of Cyperus, 15 of Panicum. The only species that need special mention are wild rice (Zizania); purple love grass (Eragrostis pectinacea); blue joint (Andropogon furcatus); sand-binder grass (Calamovilfa); sand

grass (Panicum virgatum); the curious drop seed grass (Sporobolus heterolepis); the great cord grass (Spartina); two mesquite grasses (Bouteloua hirsuta and oligostachya); and the great Lyme grass (Elymus robustus).

A few water plants or wet marsh forms are worthy of comment. The western water lily; two yellow pond lilies (Nymphaea advena and rubrodisca); the yellow and white water crowfoots; an arrow head (Sagittaria latifolia) with a leaf and stalk 6 feet in length; the rare Lophotocarpus calycinus in an isolated flood pond near East Dubuque; five species of yellow and purple bladderworts (Utricularia); water willow (Decodon); the great swamp rose mallow (Hibiscus militaris); the water plantain (Alisma).

Some 12 trees that may with propriety be listed are: the canoe birch on the Mississippi bluffs; the yellow birch on the bottoms; the red cedar on the bald cliffs; at their base, the Kentucky coffee tree; the ashes, green, black, red and white in appropriate soils; the red mulberry on the lower part of the rich wooded slope; the king nut or bottom shagbark hickory on the dry bottoms; the black sugar maple and the rock elm, associates on rocky lowlands.

The shrubs are soon disposed of, for of the many, only a few need attention; the juniper is at home on the cliff-brows; the yellow bush honeysuckle (Diervilla) on the rocky banks; the genuine arrow wood (Viburnum dentatum) and now and then a wild snowball (Viburnum americanum) on a damp cliff; yellow and red honeysuckles are here and there; the shrubby cinquefoil (Potentilla fruticosa) delights in cool damp cliffs, where also the prickly gooseberry, the nine-bark (Physocarpus) and the American yew (Taxus) are to be found. Five species of Cornus or dogwood are often met with, the common one being the small white (Cornus paniculata). In the undrained swamps, buttonbush and many willows grow.

Of the herbaceous plants not included in the above, and numbering some 233 species, there are many very striking forms, a number of which have not been found in Jo Daviess Co. except along the Illinois Central Railway. Let us dispose of these first, without order but as they occur

from Waddams to East Dubuque. As will be noted, these plants are largely original prairie species.

Between Waddams and Nora are colonies of the palmate, larkspur and birdfoot violets; the early crowfoot (Ranunculus rhomboideus) and the white blue-eyed grass (Sisyrinchium albidum). Between Nora and Warren are many fine examples of the cream colored wild indigo (Baptisia bracteata), the Quamash (Camassia), the wonderful white fringed orchis (Habenaria leucophoea) in a blanket of white on the moist low prairie; the deep blue prairie gentian (Gentiana puberula), the most enduring and bluest of our species; the flesh colored milkwort (Polygala incarnata); and the prairie parsley (Polytaenia). Near Apple River is a fine collection of purple coneflowers (Brauneria pallida); the prairie dandelion (Agoseris); the yellow hop clover, and the spicate blazing star (Liatris spicata). West of Apple River are numbers of cream wild indigo and Valerianella (V. chenopodifolia); also great collections of the edible valerian.

Near Galena, by the side of the river, is a great patch of the glade mallow (Napaea), this having been found by the author in but one other locality in Illinois; the showy hedge nettle (Stachys tenuifolia); a red form of oxalis (O. rufa of Britton) always in wet rock cuts; the two colored skullcap (Scutellaria versicolor; Sullivantia and Zygadenus chloranthus or Camass. While found elsewhere, the lilies (L. superbum and philadelphicum) are far finer on the undisturbed soil of the railroad strip. The yellow lady's slipper occurs in many places, the small white form on Apple River only.

Along the stretch of road from Portage to East Dubuque are a number of fine plants. Here only do we find the beautiful Ipomoea before named and the rose mallow; twinflower (Jeffersonia); golden Corydalis; the long flowered Puccoon; the striking poppy mallow (Callirhoe involucrata); the white plains thistle (Cirsium undulatum); C. pumilum, the fragrant one, beloved by country children who plunder it for nectar, extends the whole length; at one place only is the great Rudbeckia (R. subtomentosa) found; the small white milkweed thrives at the

western limits, while the showy prairie species (Asclepias sullivantia) abounds at the eastern portion.

Much more might be said but enough has been presented to emphasize strongly the part our great railways, built nearly three-quarters of a century ago, have in conserving and preserving our fast diminishing company of choicer plants. Here many I have named are making their last stand before extinction. It is indeed a pity that some way cannot be found to enable the railroads to set apart here and there choice remnants of this vanishing flora, to be placarded and cared for by state or local societies, as some evidence of "the glory that once was."

In conclusion, I wish to thank the Illinois Central Railway for many courtesies extended in the past days, and for the use of their large scale maps which have been used in making the sectional maps of this paper. The railroad possesses the last rear-guard of the innumerable host of beauties that once made glad the Illinois lands. This is an asset not adding an iota to the dividend of dollars, but which, preserved to the flower-loving public who ride on its trains, will engender in the hearts of an increasing constituency, a kindlier opinion toward a so-called soulless corporation, that is thus able to blend with its great undertakings, a generous and fostering concern for the flower suppliants to be cherished or blasted by its decree.

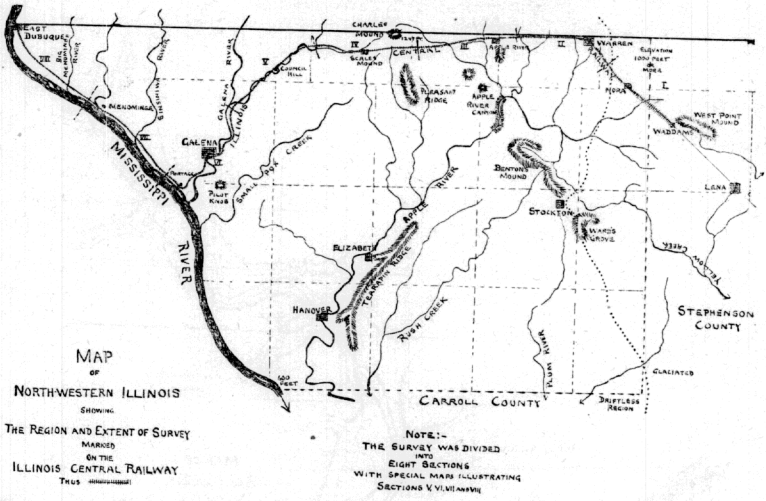


FIG. 1

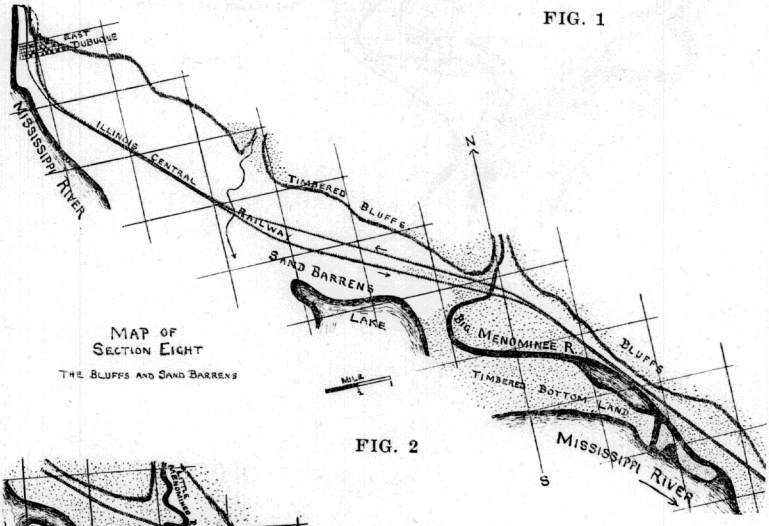


FIG. 2

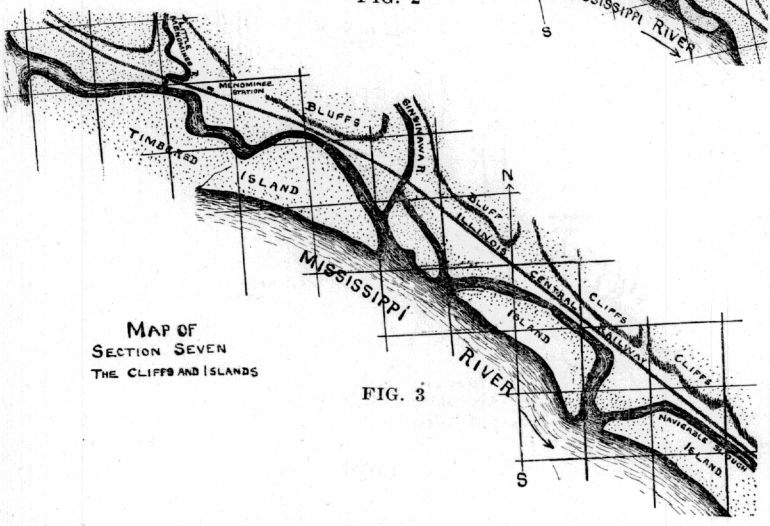
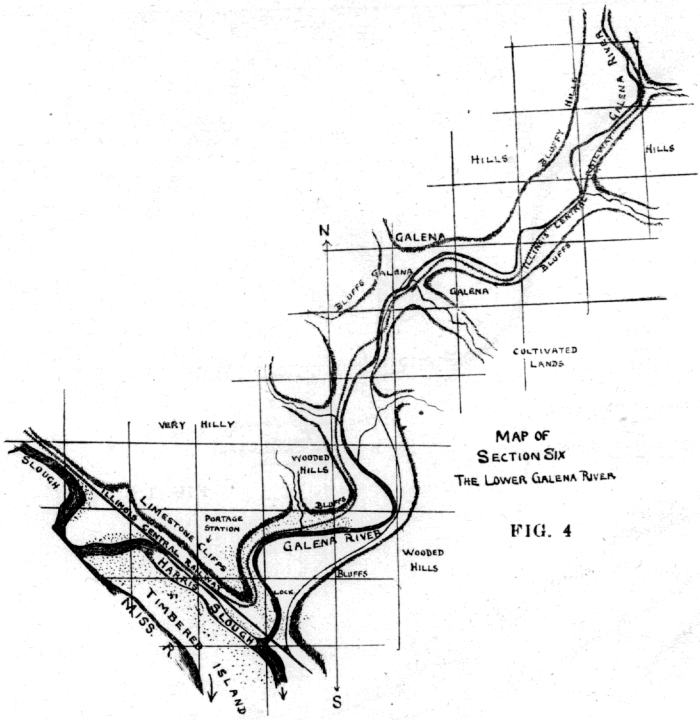
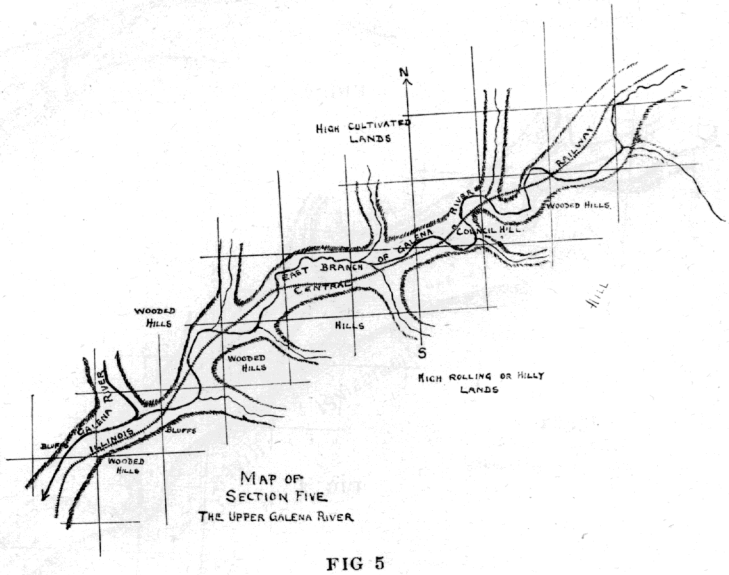


FIG. 3



MAP OF
SECTION SIX
THE LOWER GALENA RIVER

FIG. 4



MAP OF
SECTION FIVE
THE UPPER GALENA RIVER

FIG 5