Polygonum Hartwrightii, Gray, is common in bogs. It has flowered here but once in four years—the summer of 1880—and I was then so fortunate as to secure a good supply of specimens. None of the plants matured fruit.

Helianthus Maximiliani, Schrad., is very common on the prairies throughout this county. In grain fields it grows much larger, and is almost as troublesome as *H. rigidus*, L. This locality, I believe, is the farthest north from which this species has been reported.

Lespedeza leptostachya, Eng., is common on prairies.

Lophanthus anisatus, Benth., is found in woods near Estherville.

The peculiar *Lygodesmia juncea*, Don., I have found in a few localities. It chooses the driest knolls, where it seems to lead a precarious existence, so much so that I fear it will soon leave us entirely.

Liatris punctata, Hook., produces a large number of stems from the same root; the outer ones generally being nearly prostrate. It is only found on the driest knolls.

Iva xanthiifolia, Nutt., has been introduced from the northwest by cattle, and is becoming troublesome in some places. The plant is an annual, and makes a very rapid growth, the main stem often being over an inch in diameter, hollow, and very hard.

Calamagrostis stricta, Trin., occurs on wet prairies, a few culms only in a place.

Bouteloua oligostachya, Torr., grows on dry, sandy ridges, along with *Carex sicccata*, Dew., *Œnothera serrulata*, Nutt, and *Castilleia sessiliflora*, Pursh.

In June, 1880, *Senecio palustris*, Hook., made its appearance along the margin of one of our lakes, and also in wet ground near the state line of Minnesota. The larger plants, with hollow stems over an inch in diameter, grew about three feet high, and bore such a profusion of golden yellow blossoms that it was impossible to press a whole plant in a specimen. Last season not a single specimen could be found, which makes me fear that it did not come to stay.

Last season while searching along the margin of a small lake in the eastern part of this county, I came across a *Potamogeton*, bearing an abundance of large floating leaves. I sent it to Rev. Thomas Morong, of Ashland, Mass., who determined it to be *P. Illinoensis*, described and named by him in the BOT. GAZ., Vol. V, page 50. It was first discovered by Mr. H. N. Patterson near Oquawka, Ills., the only other locality known.

In a large bog, three miles from my home, I have found, within a radius of five rods, *Salix myrtilloides*, L., *Scheuchzeria palustris*, L., *Potentilla palustris*, Scop., *Triglochin maritimum*, L., var. *elatum*, Gr., *Eriophorum gracile*, Koch., var. *paucinervium*, Eng., and *Carex chordorhiza*, Ehrh.—R. J. CRATTY, *Estherville, Emmet Co., Iowa.*

Osmunda cinnamomea, L., var. frondosa, Gray.—I have had growing in my yard for a number of years (brought originally from Pennsylvania) a fine clump of *Osmunda cinnamo-*

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mea, and have admired it for its graceful habit. The sterile fronds gently curve backward so that the fertile fronds always stand erect in the center of the urn-shaped growth. There has been no change for ten years in the manner of development till the present season. Now two of the fertile fronds are partly sterile; in one the tip of the frond, for 13 pairs of pinnæ, is fertile, then two pairs partly fertile, the remaining 5 pairs not being distinguishable from the entirely sterile fronds; the other has the tip and base sterile, and 3 pairs of pinnæ out of the central portion fertile, and one pair partly fertile. Although the change from the fertile frond towards the sterile has taken place from the base towards the tip, in the pinnæ that are partly fertile the change is in the reverse order, that is from the tip towards the base. Usually after the discharge of the spores the fertile fronds wither and finally disappear, but in this case they have not withered, as have the other fertile fronds, but mantain their normal upright habit instead of curving backward.—ISAAC C. MARTINDALE, *Camden, N. J.*

The Action of Acids on Cellulose and Starch-grains.—In the BOTANICAL GAZETTE for May a discrepancy is shown between a statement made in Sachs' Text-book of Botany and some facts found by experiment, and an explanation is asked. It refers to the action of acids on cellulose. In the fourth revised edition of Sachs' Lehrbuch der Botanik (Leipzig, 1874.) this discrepancy does not exist. The translation by Bennett and Dyer was based on the third edition, and it is probable some change was made by the author in the later work. But not possessing the translation nor any edition earlier than the fourth, I cannot compare them. The accuracy of the translation may be assumed from the competency of those who made it. The same subject is evidently treated in the fourth edition, page 640, where a paragraph is found referring to the action of acids on cellulose and starch-grains, and a figure of those of *Hoya carnosa* under the influence of this treatment is inserted. A translation of the passage is given below. It will be seen that the per cent. of dilution is not stated, but is presumably somewhere near that found necessary by the experiments in Purdue University. It is with the second mode of treatment that the violent action is said to occur. The first adjective might be rendered "violent," but hardly means this when compared with the second, where the primary meaning is violent.

"Acids (especially sulphuric), greatly diluted with water, cause a stronger swelling (eine starkere Quellung) of starch-grains and cellulose than pure water, without however destroying their organization. After the acid is removed by washing they return to their former condition. But at a higher concentration (bei hoeherer Concentration) the acid produces a violent swelling (eine heftige Quellung) of starch-grains and cellulose; they are changed into a pasty state; the protoplasm coagulates just as it does at a higher temperature. Concentrated sulphuric acid finally destroys their molecular structure completely, causing a chemical change of substance; they are liquefied."—E. J. HILL, *Englewood, Ill.*

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