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28. 1888; N. H. Winchell. Geol. Nat. Hist. Sur. Minnesota, Final Rep., vol. 2.
29. 1892. F. W. Sardeson. Bull. Minnesota Acad. Nat. Sci., vol. 3, p. 318.
30. 1892. C. W. Hall and F. W. Sardeson. Bull. Geol. Society of A., vol. 3, p. 350.
31. 1892. W J McGee. U. S. Geol. Survey, 11th Ann. Rep., pp. 234 and 330.
32. 1893. C. R. Keyes. Iowa Geol. Survey, Ann. Rep., vol. 1, p. 24.
33. 1895. W. H. Norton. Iowa Geol. Survey, Ann. Rep., vol. 3, p. 180.
34. 1895. Joseph F. James. Journal of Cincinnati Soc. of Nat. Hist., vol. 17, p. 115.
35. 1895. Samuel Calvin. Iowa Geol. Survey, Ann. Rep., vol. 4, p. 68.

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[*Paper E.*]

THE RUM RIVER VALLEY AS A BOTANICAL DISTRICT.

E. P. Sheldon.

The Rum river, with its tributaries, drains the surface area of Mille Lacs, Isanti and Anoka counties. Besides this, portions of Crow Wing and Aitkin contributory to Mille Lacs lake, and the eastern edge of Morrison, Benton and Sherburne counties are in its drainage basin. The valley is thus seen to occupy a narrow strip lying between the Mississippi drainage on the west and the St. Croix on the east.

Within this narrow belt the most varied conditions for plant growth are offered. It is to be noted that this section is between that contributory area on the north and east from which we would most naturally expect the entrance of plants usually found occurring wherever large coniferous belts are extant; and the prairie-plant-contributing area on the south and west, from whence we would expect the great host of prairie composites, pulses, grasses, etc.

Viewed in this light a study of the plant immigrants now seeking a foothold in the valley becomes as interesting as a review of the endemic plants. But we must remember that in a very recent time in the history of our continent the plants now considered endemic were emigrants from the

north, the south, the east or the west. And we must not forget that the section under consideration has in times past been subject to the same glacial action as most of our Minnesota natural drainage basins. Furthermore, the Rum river valley now lies between the old Mississippi drainage on the east—the present St. Croix—and the later and present channel on the west.

Then again birds have flown, waters have carried and winds blown for ages past even as they are doing to-day, all assisting in the constant dissemination of seeds.

Before enumerating some of the plants recently found in this section, it would, perhaps, be well to point out some of the conspicuous sylvan characteristics noted, with a view to showing what a diversity of conditions and consequent multiplied chance for plant establishment.

The pine-barren region characteristic around Brainerd and Aitkin barely touches the northern edge of the drainage north and west of Mille Lacs lake.

The straight, slender jack pine, *Pinus divaricata* (Ait.) Sudw., which is found in quite heavy groves in the localities above mentioned, occurs only locally south to Princeton. East of Mille Lacs lake miles of almost impenetrable swampland renders botanical investigation difficult. The timber of these swamps is largely larch, *Larix americana* Michx. Intermixed with this is to be found a considerable quantity of black spruce, *Picea nigra* Link.

Of course the bordering edges are of typical hard-wood swamp, where maples, ashes and elms predominate. The north and west shores directly contiguous to Mille Lacs lake are high and abundantly covered with groves of maple, elm and oak. Quite often scattered clumps of the hackberry, *Celtis occidentalis* L., are found.

The major part of the Mille Lacs Indian reservation is covered with a luxuriant and valuable growth of pine, mostly *Pinus strobus* L. and *Pinus resinosa* Ait. South of this to a line a few miles north of Princeton the country is covered with a thick growth of mixed timber. This formerly contained considerable pine, but owing to the demands of civilization it has disappeared. Intermixed with this was a valuable and interesting growth of hard-wood timber, con-

sisting mostly of oak and elm. In many places this has been cut off and the characteristic plants of burnt wood-lands have become introduced.

South of Princeton sand dunes and oak openings prevail. Here almost the only trees for miles around are *Quercus macrocarpa* Michx. and *Quercus velutina* Lam.

Heretofore there has been, to my knowledge, almost no collecting and identification of material in this valley, which seems to present comparatively so little of the effect which agricultural development always has on a given area. So we find very few cosmopolitan species, and these are found contiguous to the railroad and near the few and scattered farm houses and claim shanties.

Very interesting are the orchids found in the swamps and damp woods. Most frequent to appear is *Habenaria broctrata* R. Br. This plant, while never occurring abundantly in any one place, nevertheless is found throughout the whole valley wherever anything approaching the condition of hardwood swamps is found. *Habenaria tridentata* Hook. and *Habenaria obtusata* Rich. were found sparingly in a little swamp near Nicholas, Aitkin county. *Corallorhiza corallorhiza* (L) Karst., *Cypripedium acaule* Ait. and *Cypripedium arietinum* R. Br. occur more frequently. *Achroanthes unifolia* (Mx.) Raf. is another rare orchid found growing luxuriantly in a swampy opening near Vineland, Crow Wing county. In all specimens examined, last mentioned species, the pollinia occur singly in each cell.

Petorites palmata (Hook) Gray was found but it is local in its occurrence. It prefers low, damp situations on the edges of swamps and is frequently found in open groves of poplar saplings.

Gilia linearis (Nutt) Gray is abundant along the sandy beach of Mille Lacs lake, especially on the north and west shores.

This plant is very local in its range in Minnesota. Dr. Sandberg found it at Red Wing in 1885. Aside from this the Mille Lacs locality is the only one that is definitely known for this plant in the state. From these two eastern Minnesota localities it is reported westward to the Pacific.

Physolis grandiflora Hook., a distinctive plant of the

Saskatchewan and Lake Superior basins, reaches its southernmost limit along the western edge of Mille Lacs lake. It is found abundantly in the neighborhood of the aboriginal earthworks in the northwestern corner of the Indian reservation.

Oenothera albicaulis Nutt. reaches the easternmost limit of its range in central Mille Lacs county. It is found frequently on burnt woodlands and has doubtless been introduced through the agency of the railroad.

Oenothera rhombipetela Nutt. also seems to have its northernmost limit in Anoka and southern Mille Lacs counties. In Minnesota it is characteristically a sand-dune plant.

Pentstemon grandiflorus Nutt., *Pentstemon gracilis* Nutt. and *Penstemon pubescens* Solander are frequent in the oak openings of the southern portion of the valley.

A remarkable form, closely resembling *Pentstemon albidus* Nutt., but having the open thyrse and, to a certain extent, the bearded lip of *Penstemon pubescens* Solander., was found on the sandy shores of an old lake bed west of Princeton. The constant discovery of peculiar forms of the species of *Penstemon* renders the genus extremely difficult to study.

Phegopteris calcarea Fée is an interesting fern which has so far only Minnesota and Iowa for its American localities. In Iowa it was found near Decorah by Mr. E. W. D. Holway. In Minnesota it has hitherto only been reported by Miss Ellen Cathcart from the banks of the St. Louis river. I have found three new localities for it in the Rum river valley. It was first found on the shady banks of Farm island, in Farm Island lake, about nine miles south of Aitkin. Later in the season I found it growing in abundance on Robinson's island, in Mille Lacs lake, and on the shady banks of Bordin's creek, near Garrison, Crow Wing county. It prefers shady locations on the north side of high banks.

Its near congener, *Phegopteris dryopteris* Fée. was also found abundantly on Robinson's island and on Bassett's point, near Vineland, Mille Lacs county.

The enumeration of all the peculiar and interesting plants found would be of value, but it is rather my object to point out the prolific character of this narrow strip. This is due, of course, to the diversity of conditions for plant sustenance.

Then, too, a study of the plants introduced through the agency of the railroad would be of interest. But in a section so near to the original in nature a notice of the abundance of peculiar Saprophytic plants must be taken. Everywhere in the different timbered localities, in the swamps and over the burnt woodlands Agaricinæ and other fleshy fungi were especially noticeable.

The flora of the "Thousand lakes" must also be noted, and it is well to notice that even in the counties most thickly studded with lakes, each has its characteristic alga.

November 13, 1892.

[*Paper F.*]

THE FAUNA OF THE MAGNESIAN SERIES.

DESCRIPTIONS OF FOSSILS.

*F. W. Sardeson.**

The object in presenting the following notes on the faunal characters of the Magnesian series is to establish a systematic table as a basis for the rational division of the formations of the series. A mere compilation of species already described and referred to this series would seem to prove the existence of two faunas, one for the "Lower Magnesian" and another for the "Potsdam" or "Lower Sandstone" of the Upper Mississippi basin. But no such two faunas exist. Each is a confusion of different faunas. There were also very few species known and these of very rare occurrence. In searching for these old species—for all data had to be verified—several new species have been discovered.

All fossils collected have been referred with the greatest care to their proper division of the "Lower Magnesian" (Owen), viz.:

1. Shakopee dolomite.
2. New Richmond sandstone.
3. Oneota dolomite.

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* Partially revised November 18, 1895.