
THE PRIMROSE ROCKS OF ILLINOIS

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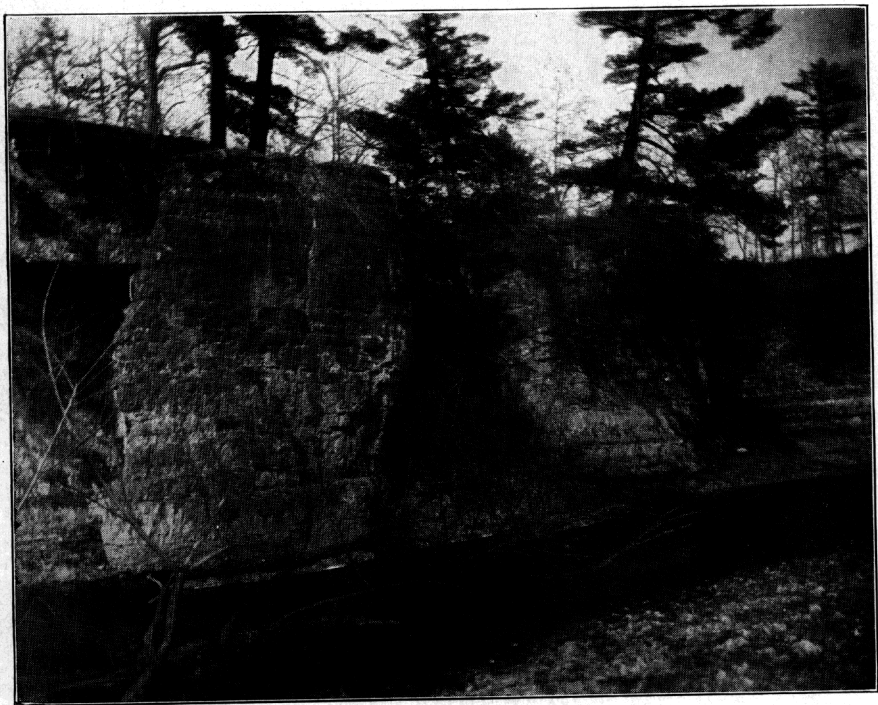
The 9th day of April, 1905, the writer was tramping down the narrow, cliff-confined valley of the west branch of Apple River, spying out the bird life of this sheltered locality, and more than incidentally, keeping both eyes open for the early blossoms of *Hepatica*, *Dicentra*, *Claytonia*, *Sanguinaria* and other bluff and valley species of plants. His attention was attracted to the peculiar coloration of a huge vertical cliff of limestone across and rising directly out of the river some fifteen rods from the point of observation. The whole face of the rock for perhaps twenty feet vertically and extending fifty or sixty feet horizontally was a solid hue of pale lavender purple. A "close up" inspection revealed thousands of small rosettes of delicate leaves, and springing from the center of each from one to four delicate slender scapes bearing from one to five small lavender colored blossoms. Only once before had any similar wild plants been encountered and they were the mealy primrose, growing on the rocky shores of Northern

Lake Huron. Evidently the new kind was a primula and a later verification made it the *Primula Mistassinica*, or dwarf Canadian primrose.

The number of plants growing on the exposed cliff was almost incredible. Some comprehension may be gained when confession is made that, remembering a good friend who was making extensive collections for herbarium purposes, four hundred and four entire plants were gathered without in any way showing that a vandal hand had even attempted to thin the ranks. So close together were the plants that practically a mat was formed by the rosettes. The leaves overlapping in all directions, as each root was on average not over two inches from a neighbor, there must have been on that favored area of rock surface not less than forty thousand plants, and these at the time above named were at the climax of their bloom, the color effect being therefore a most natural result.

A further exploration of the valley disclosed two other cliffs where a scattering growth of the plants was found, but in neither place was there any approach to the prodigality of plants, luxuriance of growth or profusion of flowers found on the first discovered area. Presumably there are other localities along this branch where the species may exist, but the fact remains, that though repeatedly visited since that year, and at all seasons, no other such find has ever been made and at this one cliff only have the plants ever been found in later years in any abundance. It is true, this lack of similar abundance and bloom may be due in large part to the great difficulty of determining from year to year the date of the maximum display. The flowers are very ephemeral and the whole cycle of the plant from beginning growth to scattered seed is barely six weeks. The varying seasons bring on the climax at different dates, the time alone when the color display is marked, and one would actually be compelled to camp on the grounds yearly for ten or more days to discover the same glory that was a purely accidental find of 1905.

Growing, as the plants do, on cliffs that are essentially vertical, there can be no question but that most of the seeds produced are lost through the agency of gravity by being precipitated into the underflowing stream. Only a mere pittance would lodge in the zone of favorable conditions. The



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area in question is a thick-bedded and very much weathered and eroded Platteville-Galena limestone, having many chert seams from which year in and out there continually oozes a lime-saturated cold clear water, giving the whole face of the Primrose section a very wet condition. In fact the conditions are largely the same as would prevail in a well drained swamp. Of disintegrating rock there is abundant supply, but of humus and ordinary soil there is practically none, and it is an interesting problem as to where the primula and other associated species obtain the nitrogen necessary for protoplasmic needs. The seeds that do germinate almost of necessity are caught by some portion of the rosette or lodge on the decomposing rock or in the numerous weathered cavities.

The constant water seepage, beside furnishing abundant moisture and certain mineral elements, has marked ameliorating effect on the rock temperature, both summer and winter. In summer the roots of the plant are kept constantly cool, even in the face of the hot afternoon sun, for all these primrose cliffs have a westerly exposure. In winter, on the contrary, the water keeps the immediate surface and surface rock layers above the freezing point, finally forming ice cascades that cover most of the cliff face, and these must effectually protect from the cold western blasts the delicate roots and crowns buried beneath them.

This primula, as a rule, grows in a nearly pure association, very few if any other species intermingling. Here and there, however, there are little islands in the midst of, or peninsula like tongues extending into the primrose growth from the margins. These are overgrown with various species of mosses, one or two liverworts, a *Parnassia*, *Sullivantia*, *Potentilla fruticosa*, *Hypericum Canadense*, *Epilobium lineare*, *Steironema quadriflorum*, *Lycopus Americanus*, *Mimulus ringens*, *Pedicularis lanceolata*, *Galium boreale*, *Campanula uliginosa*, *Lobelia Kalmii* and *Senecio obovatus*. It is to be especially noted (as set forth in *Cliff Flora of Jo Daviess Co.*) that the above list is of typical swamp or marsh species, but which all through this particular region elect largely to grow on wet cliffs and with even greater luxuriance than when inhabiting the ordinary level swamp.

There is practically no danger of extermination facing this pretty species for its home has absolutely no value to man and only the wild climbing folk can by any possibility obtain precarious footing where it dwells in peace. The hog, that arch enemy of the wild plant people, can never tread these cliffs and the average human plant hog is too solicitous of his neck or extremities to venture on these slippery steeps.

In conclusion, a brief statement of the geographical distribution of our plant will be interesting. Gray, Britton, Bailey and others agree in giving it a far northern range extending well into the arctic regions of North America and reaching the United States in Northern Maine, Vermont, New York, Upper Michigan, Wisconsin, Minnesota and so North West to the Saskatchewan. This remarkable southern extension into the northwestern Illinois, therefore, is Mistassinica's "farthest south" by over one hundred miles from any neighboring station. The inference is drawn that this station is a remnant of a vast horde of the plant that in preglacial days occupied much of the rock region of Northeastern North America, the glaciers having obliterated most of these plants, the Illinois locality escaping because the ice destroyer did not there encroach.
