

SOME OBSERVATIONS ON THE PASQUE-FLOWER

by G. F. LEDINGHAM and S. D. LARMOUR*

One of the commonest signs of spring in southern parts of the Prairie Provinces is the Pasque-flower. Though the plant is commonly known as the crocus, this is not a good name because the word "crocus" properly refers to the Autumn Crocus (genus *Colchicum* in the lily family) or Crocus (genus *Crocus* in the iris family). Unlike the Crocuses, which are Monocotyledons, the Pasque-flower belongs to the Dicotyledons in the genus *Anemone* in the crowfoot or buttercup family. The origin of the name Pasque-flower is of some interest too, referring as it does to the centuries-old observance of a religious ceremony symbolizing the renewal of life in the spring.

The Pasque-flower is widespread in the northern parts of Europe, Asia and North America. It is a perennial with several flowers and leaves coming up each year from an underground stem. The flower buds appear early in the spring and one of the joys of spring as the snow starts to disappear is to walk over the dull brown prairie and see the soft hairy buds of the Pasque-flower. These buds, which appear before any sign of leaf, gradually enlarge until, on the first warm spring day when the temperature is about 50°F., the prairie may be thickly dotted with clumps of bright 2 to 3-inch flowers. Botanically speaking, the flowers have no petals but the sepals are large and showy. The sepals are usually a rich purple color on the outside but they are nearly white within. The dark outer side absorbs light and heat, but the light inner side reflects the sun's energy to create a microclimate somewhat warmer and more attractive to the insects who come to feed and, incidentally, to cross



Normal Pasque-flower G. F. Ledingham

pollinate the flowers. As the sun descends and the day cools, the sepals come together again and many insects are trapped and protected overnight. The Pasque-flower is generous and produces much pollen to reward the hardy pollinators who venture out in early spring to cross pollinate and help maintain the rich variability usually found in native plants.

When the Pasque-flowers are fully open, it is an easy matter, on a warm spring day, to run over short grass prairie looking down into the flowers to see if the bees and other insects are at work and to note the number of sepals on each flower. We know that the number is not constant. (Moss in *Flora of Alberta*, 1959, gives the range as five to seven). We took time one day to make a count in half a dozen different pastures in or near the Qu'Appelle Valley, 20 miles north of Regina. The great majority of flowers (over 95 per cent) had six sepals but some had five or seven and usually these odd flowers were in clumps in which the rest of the flowers had six sepals. We were, of course, not able to decide in our rather random

*Biology Department, University of Saskatchewan, Regina, Saskatchewan.

counting of some thousand clumps if any plant had a true genetic difference in number of sepals. It seemed to us that the variation in sepal number was developmental, for we assumed that a clump of closely associated flowers was always just one plant. We resolved to look another day at other populations of Pasque-flower but the 1972 flowering period ended before we again found time to look at plants of our native grasslands.

From time to time people report a clump of pure white Pasque-flower but we have never seen what must be a rare variation. We did, however, note some variation in the colour of Pasque-flowers. One such flower was a delicate pink, and because the flower stood alone we can assume that it was a young plant which had been able to produce only one flower. A few flowers seemed to be blue rather than purple and we wondered if they, too, are the result of a genetic variation. It would be interesting to know whether anyone has studied the inheritance of flower colour in the Pasque-flower.

Early in the spring of 1972, Mr. W. Anderson, 3617 Victoria Avenue, Regina, phoned and asked if I (GFL) would like to see a double "crocus." I was naturally eager to do so and together we went out on Highway No. 6 to the Qu'Appelle Valley and then turned west along the valley road. On a grassy bank just above the road Mr. and Mrs. Anderson showed me the interesting Pasque-flower variation shown in the accompanying photo. There were five flowers in the clump and all of them showed the same anomalous development of many petal-like structures. There was no sign of the stamens or rich yellow pollen which are so conspicuous in normal Pasque-flowers. Apparently some genetic variation had changed all the stamens into sterile purple petaloid structures. The Andersons explained that this was now the fourth year that they had been coming to this exact spot to visit and admire this unusual flower. Unfortunately, however, it will be impossible for them to do so in the future because "improvement" of the valley road has destroyed the area.



Double Pasque-flower.

G. F. Ledingham