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# MECHANISM FOR SECURING CROSS FERTILIZATION IN SALVIA LANCEOLATA.

G. W. NEWTON.

This plant was found growing abundantly about Grand Island, Nebraska, especially in waste places where the sod had been removed. It is 6 to 18 inches high, has lanceolate to linear, sparsely serrate leaves. The racemes are 1 to 4 inches long. The corolla is about three-eighths of an inch long and of a delicately blue tint, the upper lip forming a pubescent hood enclosing stamens and style. The lower lip is comparatively broad, three lobed and by its protrusion affords an excellent landing place for insects. The style is nearly glabrous and is bifurcated, the upper branch being exserted and curved upwards. The lower branch is slightly flattened at the end forming the stigma, which extends a little beyond the anthers in such a position that it is quite sure to come in contact with the insects entering the flower. The stamens, two in number, are peculiar. The filaments are short and attached to the lower lip of the corolla. The anthers are long, yoke shaped, one celled at the upper ends, and are attached by hinges near the middle to the filaments. They curve backward, are united the lower third of their length and rest their lower extremities on the corolla.

There is a groove down the center of the lower lip along which the insect's proboscis will be directed in searching for nectar. By this act the sterile ends of the anthers will be raised and the anther cells will descend like the ends of an old fashioned well sweep, and come into contact with the head or proboscis of the invading insect. The pollen thus secured is quite sure to be deposited on the stigma of the next flower visited, thus securing cross fertilization. After being tilted, the anthers are under tension and readily return to their former position. A little below the middle of each anther is a slightly curved projection which fits

into a groove in the lower lip of the corolla. This mechanism may thus assist the anthers to return to their normal position, or may prevent the proboscis of the insect from being thrust down the side of the corolla, and thus evading the pollen. Many small bees were seen to visit these flowers on bright days. The plant blossoms during July and August and a few flowers were found in the latter part of September.

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## NOTES OF SOME INTRODUCED PLANTS OF IOWA.

L. H. PAMMEL.

Since the settlement of Iowa many changes have taken place in our flora, especially with reference to introduced plants, and the disappearance of many indigenous species owing to breaking up of prairies, and the destruction of some timber areas, and the draining of ponds and lakes.

It is with difficulty that species of *Potamogeton* have been enabled to retain their hold in water, or that *Cypripedium spectabile* should maintain itself in the wooded and much pastured timbers of Iowa. With the early settlement of Iowa there came a host of European weeds. They are so well naturalized that it is no longer possible to state whether they are introduced or indigenous, nor are we able to state when they were introduced. In fact there are no early collections, and in many cases early collectors failed to note whether the plant was introduced or indigenous. We have no early records for such common weeds as *Portulaca oleracea*, *Verbascum thapsus*, *Anthemis cotula*, *Malva rotundifolia*, *Chenopodium album*. Indeed, we are unable to say how rapidly these weeds have spread. In fact when we look over our introduced plants we find that there are but few cases in which there are statistical records such as we now have for *Lactuca scariola*, *Salsola kali*, var. *tragus* or *Solanum rostratum*, *Hieracum aurantiacum* and a few others. Those who are connected with our experiment station have frequent requests to identify weeds, and it would