

portions of the two middle stamens?—Because this enables the bee to move the pistil, and thereby to set free the pollen more easily than would be the case under the reverse arrangement.

In *Viola tricolor*, the form of the stigma is very different from that of *V. canina*, but the reason of the difference has not been satisfactorily explained. Mr. Bennett considers that this species is fertilised by Thrips. Mr. Darwin, however, has satisfied himself that when bees are excluded, it is comparatively infertile, and he has favoured me with the following memorandum on the subject.

“When,” he says, “I formerly covered up a fine, large, cultivated variety, it set only 18 capsules, and most of them contained very few good seeds, several from only 1 to 3; whereas an equally fine uncovered plant, growing close by, produced 105 fine capsules. The few capsules which are produced when insects are excluded are probably due to the curling up of the petals (as Fermond and F. Müller remark) as they wither, by which process pollen-grains adhering to the papillæ may be inserted into the cavity of the stigma. The moth *Plusia* is said to visit the flowers largely. Humble-bees are common agents in fertilising these flowers; but I have seen more than once a fly (*Rhyngia rostrata*) with the under side of its body, head, and legs dusted with the pollen of this plant, and having marked the flowers which they had visited, found, after a few days, that they had all been fertilised.

“It is curious in this case, as in many others, how long the flowers may be watched without seeing one visited by an insect. During one summer, I repeatedly

watched some large clumps of heartsease, many times daily, for a fortnight, before I saw a humble-bee at work. During another summer I did the same, and then one day, as well as on two succeeding days, I saw a dark-coloured humble-bee visiting almost every flower in several clumps ; and after a few days almost all the flowers suddenly withered, and produced fine capsules. A certain state of the atmosphere seems to be necessary for the secretion of nectar, and as soon



FIG. 59.—*Polygala vulgaris*.

as this occurs, it is perceived by various insects, I presume by the odour emitted by the flowers, and these are immediately visited.”

POLYGALACEÆ.

This order contains, according to Bentham, but one British species, which, however, is very common, the