

diagnoses of *V. mirabilis*: "*Viola montana latifolia*, flores ex radice, semina in cacumine ferens Dill.," and "*Viola floribus radicalibus abortientibus, caulinis apetalis seminiferis* Linn." But besides *V. mirabilis* a few other old world species of the genus are known to produce cleistogamic flowers as, for instance, *V. odorata*, *silvatica*, *canina* and *persiaefolia*, some of which have been described and figured by Professor Warming in his Manual of General Botany (1895. p 546.). The structure of the cleistogamic flowers is not, however, identical in all the species, and in regard to the North American species we have noticed some peculiarities, which may prove useful in the distinguishing of certain species.

The cleistogamic flowers remain constantly closed in the species which we have examined, and the general aspect is like that of *V. Macounii*, figured on our Plate IV, fig. 1, and the flower is nodding like the perfect. The sepals are normally developed and show a very prominent ciliation, but the petals are merely present in the shape of small warts; only two stamens are developed, (fig. 2) and in their natural position they are closely applied to the pistil. These stamens have large connectives, prominently denticulate along the margins, and the anthers are small and contain as usually only a few pollen-grains. The pistil has a short curved style, but no proper stigma is developed. These cleistogamic flowers of *V. Macounii* are sometimes buried in the ground, but at other times they are raised above the surface, borne on almost erect peduncles. It seems as if this varied position is due to atmospheric conditions; we have at least noticed that in several other species these flowers are only buried in the ground when the season is very warm and dry, while they develop above ground when the atmosphere is damp and cool. In *Viola papilionacea* the cleistogamic flowers are, thus, not always underground, and they differ from those of *V. Macounii* by having larger appendages on the sepals (fig. 5) and by these being glabrous. In this species there are, also, only rudimentary petals and only two stamens, which are somewhat larger than those of the former species. But in *V. sagittata* the cleistogamic flower is very much different. The appendages of the sepals (fig. 8) are long and narrow; the anterior petal is plainly developed