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## BIOLOGICAL NOTES ON CANADIAN SPECIES OF VIOLA.

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(With two plates, drawn from nature by the author.)

In recent years North American, and especially Canadian, violets have attracted considerable attention on account of their very liberal contributions to the number of "undescribed species"; but it so happens that we have gained no further knowledge of the life-history of the genus than we already possessed from the time when the *Violaceæ* were studied from a thoroughly scientific point of view, when species were studied and treated as living beings with some power to adapt themselves to their environment and to vary, instead of as mere unnamed herbarium material. It really seems as if the species of *Viola* fared better at the time of Linnæus than they do now, for at that time they were at least classified in such a way as to become readily determinable, while in recent years the accumulation of supposed new species has gone on so rapidly as to leave the enumeration of these in anything but a systematic arrangement, with the omission of important morphological characters and regardless of natural affinities.

We naturally arrive at the conclusion that it would be more desirable and more beneficial to the study of natural science if we contented ourselves with a smaller number of species but well-defined and better appreciable from a biological view-point. The mere leaf-outline, the presence or absence of pubescence, the relative size and color of the perfect flower are deceptive characters, and even the position of the so-called "apetalous" flowers: aerial or underground, is far from constant. Systematic works, even of a very recent date, seldom contain anything new in the line of biology or morphology, since the authors generally content them-