plex, P. Strumii, Arthrodesmus incus, A. octocornis, Hyalotheca mucosa, H. undulata, Gonatozygon asperum, Spirotaenia obscura, S. bryophila, Mesotaenium micrococcum, M. Clepsydra, Gloeocapsa magma, Chroococcus turgidus, Calathrix gypsophila, C. orsiniana, Tolypothrix rupestris, T. flaccida, T. pulchra, Scytonema calotrichoides, S. gracile, S. turfosum, S. cortex Sirosiphon compactus, Hapalosiphon Braunii, H. tenuissimus, Nostoc rupestere, N. coeruleum, N. muscorum, Anabaena stagnalis, A. variabilis, Spirogyra Elongata, S. inflata, S. quadrata, S. dubia, S. adnata, S. rivularis, Zygnema stellium, Z. cruciatum, Zygogonium parvulum, Z. pectinatum, Scenedesmus rotundatus, Ulothrix Zonata, U. aequalis, Cladophora fluitans, Oedogonium undulatum, O. irregulare, Bulbochaete crenulata, Stigeoclonium Thermale, Oscillaria major, O. imperator, O. Elegans, O. natans, O. nigra, Conferva punctalis, Vaucheria aversa, Chroolepus aureus, Rhizoclonium fontinali, Polyedrium minimum, Porphyridium cruentum, Synedra valens, Cocconeis pinnularia.

REVERSION IN TRILLIUM.

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It has long been well known that the genus Trillium frequently shows monstrosities of various kinds and degrees. The writer, among others, has called attention, on several occasions, to some of these variations and has cited the chief literature on the subject. It is therefore not the object of this paper to call special attention to these well known deviations, but to indicate the character and time of reversion to the normal condition.

Of the species of Trillium with which this paper is concerned, the writer has observed least tendency to deviation from the normal, in *T. nivale*. This fact was confirmed by an observation extending over a period of 23 years in undisturbed conditions, where only one case of pyllody was produced. During that period, however, a considerable number of variations in *T. sessile*, *T. recurvatum* and *T. erectum* were observed in the vicinity of the cultivated and uncultivated specimens of *T. nivale*.

It is comparatively rare, under ordinary conditions, that plants in the wild or uncultivated state are apt to be left undisturbed over a period of years sufficient for continuous observation and termination of an experiment, such as this one. However, this was done in an adequate number of specimens in the natural habitat, to establish the points at issue. More convenient and continuous observation of these points were also attained by transplanting a considerable number of specimens representative of the facts here involved. The conditions under which the transferred specimens of the species of Trillium were grown were normal, and in one case, has extended over a long enough period to be convincing.

The short root stalk contains sufficient food to produce more than one year's aerial stems and in fact a considerable portion of this underground part may be carefully removed on transplanting with no adverse effect on the aerial parts. It is by no means unusual to observe two and sometimes three or more stems sent up from one root-stalk. For example, each of three rhizomes of *T. sessile* produced two stems having four and five parts in the flower and leaf whorls. Another rhizome of the same species sent up two stems one of which had the usual number of leaf flower parts, while the flower of the other stem on this rhizome had five leaves and five parts in each flower whorl. Other multi-stemmed rhizomes presented various numerical differences. The reversion of the abnormal specimens to the normal condition was, in all of the many cases observed, eventually complete, as to the size of the plant, to the flowers and in all other respects. This was also true of the flowers of *T. recurvatum*, in some specimens of which, only petal-like parts were present and even where no vestige of reproductive parts were observable. The specimens of *T. sessile* showing abnormalities were frequently below normal size.

That the reversion to normal has a definite time limit, is a point of interest. In most of the abnormal specimens, all of the aerial stems, leaves and flowers, which were produced the second year, were perfectly normal. However, in some specimens, this was not the case. Only three specimens of *T. sessile* and one specimen of *T. recurvation* showed any tendency not to become normal after the first year of abnormality and to deviate to any degree from the ordinary course of development. This abnormal condition continued in both *T. recurvatum* and also in *T. sessile* for two years. The third year and thereafter, they produced perfectly normal flowers and leaves. Where a difference in size of the plants was detected this difference disappeared in all cases at the end of the first year after abnormality. Of the four species studied, this difference in size was most frequently observed in *T. sessile*. An interrupted experiment on monstrosities in *T. erectum* would probably have shown a similar return to normal conditions.

The various statements made with reference to abnormal flowers in Trillium, based on chance observation, or over a short period of time, have heretofore left certain points unanswered. These can therefore be determined, for this genus of plants, only when extended over a considerable range of years, under suitable conditions and regular inspection, as has been briefly set forth in this paper. Of the four species of Trillium observed by the writer, for the most part over a long period of time, *T. nivale* is the least inclined to deviations from the normal, both in the wild and cultivated state.