# MONSTROSITIES IN TRILLIUM.

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From 1905 to 1926 the writer has discussed in the Proceedings of the Indiana Academy of Science certain deviations in plants from the normal. In 1905 the discussion was relegated entirely to the genus Trillium. A further contribution by the writer appeared in 1906 where three species of Trillium are described and illustrated as to monstrosities. The literature is also given in the above cited papers.

The author has found by a study and observations extending over many years that of the genus Trillium, the so-called "snow trillium," or *Trillium nivale* tends less to depart from its usual characters than any other of the several species he has investigated. In a continuous study of *T. nivale* over more than 20 years a slight tendency was noted (p. 83) "in only a few instances toward a monstrosity." "This occurred in the transplanted specimens and was evidenced by a partial transformation of the petals in one of the flowers to leaves." This instance of phyllody in *T. nivale*, however, seems to be extremely rare and is all the more surprising when it is remembered that the genus Trillium is rather inclined to monstrosities in instances of phyllody in various of the species. Only a slight union of floral parts has been observed by the writer in *T. nivale* growing in the wild state.

Anthesis in most flowers was greatly delayed in the year 1924 due to the seasonal conditions. A difference of 21 days was shown in this respect by many plants due in large measure to low temperature. The Trilliums while not so late in blooming as some other plants, were nevertheless considerably retarded. A comparison of the date of blooming of plants, such as Trillium in 1924, with the record kept by the writer of former years when conditions were more normal, showed a striking difference. The Trillium flowers in the region of Marengo and Wyandotte caves were open eight days before those about Bloomington, although the distance is only about 65 miles. Unusual variations were observed in the Marengo region in Trillium. Several specimens of *T. recurvatum* as well as *T. sessile* and *T. erectum*, possessed flowers, which as regards the number of parts, were in some cases supernumerary and in other cases were subnumerary. An unusual number of the flowers of *T. erectum* possessed brilliantly pink petals and far in excess as regards intensity of color of that generally observed. The petals were twice the natural size.

*T. sessile* is especially inclined to deviations of the above mentioned variety. Deviations in the genus Trillium have been noted by many writers and the literature on this topic has been referred to in some detail in the writer's previous papers. Holzinger has mentioned and illustrated a monstrosity in *T. grandiflorum* similar to that observed by

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the writer in *T. sessile*, but with a smaller number of parts. *T. sessile* when showing a monstrosity as above indicated, so far as observed, is always smaller than other individuals of that species in the same locality which are normal in other respects. The parts of the flower in Trillium, as above indicated, are not always increased but are sometimes decreased in number as the writer has further described in the case of *T. erectum*. The writer found another specimen of *T. sessile* which was transplanted in the spring of 1926, in order to follow out some of the above points. This has, heretofore, not been so easily attended with success as might seem to be easily possible. This is all the more unusual in as much as it is well known that plants of the genus Trillium are easily transplanted and successfully grown where ordinary care is exercised, as the writer has shown by an experiment extending over a long period of years. The specimen of *T. sessile* above mentioned which the writer has under observation had in 1926 the usual number of parts in only the androecial whorls. This flower had four sepals, four petals, the usual six stamens and four styles. All these parts showed in part the usual relation with reference to one another but all were much smaller than the normal specimens, for the various flower parts measured only one-third the size of similar parts in the control plants which were used for comparison. There were also four foliage leaves on this specimen of *T. sessile* in 1926 instead of the usual three leaves. These also, like the flower, were much smaller than those of the normal plants in the same vicinity. Their length was only one-third and their breadth one-half that of the average dimensions of the normal plants. This year (1927) this specimen of *T. sessile* did not revert to the usual number of parts. There were present three leaves, four sepals, three petals, four stamens and four styles. All the various parts were still below the normal size.

## MODIFIED NARCISSUS FLOWERS.

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The writer has observed some specimens of *Narcissus Pseudo-Narcissus* whose flowers showed an unusual form and color. As stated by Bailey the flowers are "seldom green." In the so-called "full-flowers" part of the flower divisions of my specimens were more or less green and others entirely so, as stated below. This was particularly noticeable in the case of those plants which had been in cultivation for a protracted period. Within the last ten years during which time the plants have been under observation, from year to year, the green color gradually advanced in the segments of the "full-flowers" that were produced each season, until finally in the tenth year all of the flowers of the specimens, here referred to, were entirely green. The change from light yellow to green nearly always began in the peripheral division of the flower and proceeded inward toward the center. As regards the individual segments of the "full-flowers" the change to a green color