A Variation in Plantago Lanceolata.

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A variant form of *Plantago lanceolata* L. has been under observation by the writer for somewhat more than a year and offers an opportunity for further interesting work. A preliminary report will be given here for the

Fig. 1—Plantago lanceolata L. Normal plant at the left; the variation at the right.

purpose of finding out whether or not the peculiarity has been observed elsewhere.

The original plant was found near the Indiana University waterworks reservoir, north of Bloomington, in June, 1915. It was immediately transplanted to the University Campus, and, although flowers were present at the time, no seeds were matured that year. In October the root was separated into four parts and transferred to the greenhouse. During the winter the

plants grew well, but no flowers were produced until the regular flowering time for the species, the plants having been transplanted outside in the meantime. Then many inflorescences appeared, and several seeds matured during the summer and fall.

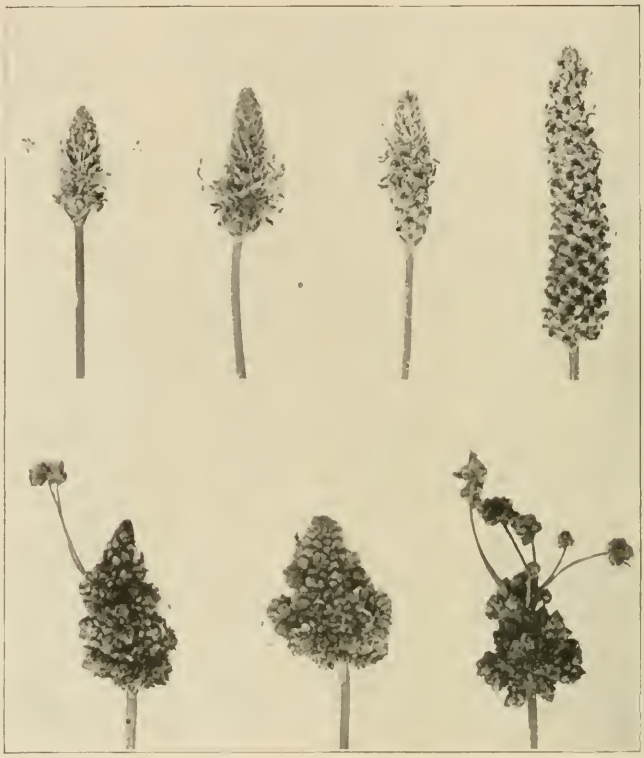

Fig. 2—Inflorescences. Above, normal inflorescences of different ages; below, compound inflorescences of the abnormal form.

Throughout the period of observation, the striking feature has been the shape and structure of the flower cluster. The normal inflorescence of the species is a spike; that is, the flowers are sessile on a single common axis; but in this plant the inflorescence is made up of a number of short, conical spikes arranged in a conical aggregation around the end of the scape as a central axis. In many instances the stalks of these spikes are considerably elongated. (See the figures for a comparison of the variation with the type form.)

The details of the flower have not yet been examined thoroughly, but it seems that only a few of them function; and, of these, a great many do not have normal stamens. No other plant of the genus was allowed to grow within a radius of 250 feet from this one during the past summer, and it is very probable that self-pollination was the only means of seed production. The small number of seeds produced—only 10 to 20 in an inflorescence—may be correlated with the scarcity of pollen.

In some ways the abnormality resembles those caused by insect or fungous diseases in some other plants, but no organism has been found in this case, and there is no good evidence of the presence of a parasite in the tissue of any part of the plant. Moreover, if a parasite is present, it has remained with the plant through a variety of conditions of environment, and is not known to have been transmitted to any other plant of the species. This possibility as to the cause of the peculiarity will be investigated later if no positive results are obtained from the investigations now in progress.

Some of the seeds have been planted, and a fair per cent of them have germinated. If the peculiarity reappears in the next generation, it will furnish good reason for treating this plant as a definite specimen of mutation. The roots of the old plant have again been divided and transplanted and give promise of at least another season's growth.

The writer has observed the same variation in this species on two other occasions, but on the first of these the significance of the peculiarity was not realized, and no thorough examination was made. In the other instance the plant was examined carefully, and it was found that only a few inflorescences were abnormal. The spikes of *Plantago Rugellii* Dcne. often show a similar tendency by being more or less branched, especially when growing in rich soil and well supplied with moisture. But the variation here described does not seem to be in any way connected with soil or moisture conditions; and every one of the 500 or more inflorescences produced during the past summer has consistently shown this peculiarity.