

LINNÆAN SOCIETY.—Feb. 5.

ON THE EXISTENCE OF THE TWO FORMS IN SOME SPECIES OF LINUM.—A paper by Mr. C. Darwin was read, on the existence of two forms in several species of the genus *Linum*. In the *Linum grandiflorum* these two forms occur in about equal numbers; in general appearance both are alike, but closer examination shows that in one the styles are short, and diverge to such an extent that they are thrust out between the filaments, not being long enough to reach the anthers. In the other form the styles are very much longer, and stand perfectly erect, occupying the centre of the flowers. So far as can be ascertained by microscopic examination, the pollen of both forms appears identical in structure. In the year 1861, eleven plants of *Linum grandiflorum* were growing in Mr. Darwin's garden; of these eight were long-styled and three short-styled. Of the long-styled plants it was ascertained that when the stigmas were covered with pollen from long-styled flowers, they invariably remained sterile, but that when fertilized with pollen from the short-styled variety, they produced abundance of seeds. Of the short-styled form it was found that they were rather more fertile with their own pollen than the long-styled; but it was thought possible that this might be dependent on pollen from the long-styled flowers being conveyed by means of the small dipterous insects that frequent the species. In the year 1862, Mr. Darwin experimented on plants which were protected from insect agency. Fourteen long-styled flowers fertilized with short-styled pollen, produced eleven perfect capsules. Whereas one hundred long-styled flowers, fertilized with pollen from the same form, produced only three capsules, and these were imperfect.

In the short-styled form, of twelve flowers impregnated with pollen from the long-styled variety, seven produced perfect capsules containing seeds, as contrasted with one hundred with their own pollen, of which only eleven produced seed. Thus it appears that there is a slight difference between the two forms, the long-styled being perfectly sterile with its own pollen, whereas the short-styled is only partially so. Microscopic examination and dissection show that when the pollen grains from the short-styled variety are placed on the stigmas of the long-styled flowers, they burst in about five or six hours, and emit long tubes, which can be traced down the tissue of the style, and that in about twenty-four hours the stigmas wither, showing that their function has been fulfilled. When, however, the pollen of the long-styled flowers is placed on stigmas of the same form, only a very small number of the grains burst, and the tubes emitted by them do not penetrate more than a very short distance into the tissue of the stigma. Thus it appears that the stigma of each variety is perfectly powerless over pollen of the same variety, but that simple contact with the stigmatic surface causes the pollen of the opposite form to emit its tubes.

It would be difficult to overrate the value of the contributions with which Mr. Darwin has lately enriched Botanical Science. The present

is of immense value, not only for the positive information which it affords on a subject altogether so novel and interesting, but also because it shows young naturalists how much may be done in the study of the simplest and most common organism, provided this be carefully and conscientiously carried out. To those botanists who believe that botanical science consists in a mere knowledge of the names of numerous species, and that it is to be mastered by merely collecting and cataloguing plants, we commend the recent investigation of the illustrious author as an example worthy of all imitation.