with the ENGELMANN herbarium. This unpublished and undistributed material, containing about 650 numbers, represents the collections of 1849–1851, and proves to be very valuable. It has now been published by BLANKINSHIP,[33] who has still further added to the value of the contribution by including also the numbers of the earlier fascicles not previously enumerated (*Plantae Lindheimerianae* having been left unfinished at the end of the Compositae); a bibliography of Texan botany; a complete index of all three parts, with modern equivalents and corrections, the nomenclature comforming to the Vienna code; and a most interesting sketch, with portrait, of "LINDHEIMER, the botanist-editor," from data largely supplied by his son and daughter.—J. M. C.

Mutation and geographic distribution.—WILLIS[34] has continued his arguments in favor of mutation by analyzing the geographic distribution of the Dilleniaceae, stating that this family is chosen simply because it is the first family in HOOKER'S *Flora of British India* "with other than world-wide distribution." The details of the analysis cannot be given here, but the results are intended to show that the theory of mutation greatly simplifies the problems of geographic distribution.

In another short paper[35] WILLIS suggests what seems to be an important consideration in the origin of species of flowering plants, namely, that "while the characters that distinguish species and genera are largely characters of the floral organs, the struggle for existence is almost entirely among the seedlings and young plants, in which these organs are not yet present."—J. M. C.

Fertilization in Polytrichum.—The VAN LEEUWEN-REYNVAANS[36] have published the first account of the details of fertilization in mosses and describe most remarkable behavior by the chromatin. In the next to the last division of the spermatogenous cells each daughter nucleus receives six chromosomes, but in the final mitosis only three, so that the sperm contains only three chromosomes. The mitosis which forms the egg and ventral canal cell shows only three chromosomes for each nucleus. The egg and ventral canal cell become pressed together and their nuclei fuse, forming a nucleus with six chromosomes. Two sperms then unite with this egg, thus restoring the sporophytic number of chromosomes, which was found to be twelve. The full paper with the plates will be awaited with interest.—CHARLES J. CHAMBERLAIN.

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[33] BLANKINSHIP, J. W., Plantae Lindheimerianae, Part III. Ann. Rep. Mo. Bot. Garden **18**:123–223. 1907.

[34] WILLIS, J. C., The geographical distribution of the Dilleniaceae, as illustrating the treatment of this subject on the theory of mutation. Annals Bot. Gard. Peradeniya **4**:69–76. 1907.

[35] Further evidence against the origin of species by infinitesimal variations. *Idem* 17–19.

[36] VAN LEEUWEN-REYNVAAN, Mr. and Mrs. Doctors, On a double reduction of the number of chromosomes during the formation of the sexual cells and on a subsequent double fertilization in some species of Polytrichum. Koninklijke Akad. Wetenschappen **1907**:359–365.