disappears, so that the four nuclei come to lie in a single cell. The upper and lower ends of this cell are cut off as the "restored trichophoric cell" and the inferior supporting cell. Each of these contains a single nucleus. The two remaining nuclei undergo a series of conjugate divisions, as a result of which a superior supporting cell, and sometimes a secondary inferior supporting cell, each with two nuclei, are cut off. Two nuclei, presumably one derived from each nucleus of the original pair, remain in the parent cell or ascogonium. The ascogonium may either give rise to asci directly, thus itself becoming an ascogenous cell, or it may divide and give rise to two ascogenous cells. The only nuclear fusion in the life cycle of the plant is that which takes place in the ascus.—H. HASSELBRING.

Mitochondria.—The literature on mitochondria is growing, but as it grows the difficulty in defining the structures becomes greater and greater. Just as centrosomes were followed by centrosome-like bodies and blepharoplasts by blepharoplastoids, the mitochondria are now followed by mitochondria-like structures. WOYCICKI[15] describes in the pollen mother cells and microspores of *Malva silvestris* mitochondria-like bodies, which first appear as small granules, then become vacuolate and divide by constriction, and finally disappear completely after the formation of the intine. Starch is entirely lacking during these stages, starch grains first appearing after the exine has become differentiated. The mitochondria-like bodies have nothing to do with leucoplasts or the formation of starch. In *Malva* they resemble somewhat the proteid vacuoles of Coniferales.

Improvements in technic have certainly brought to light some minute structures of the cell which were previously overlooked, but what these structures are and what their significance may be, are problems still awaiting solution.—CHARLES J. CHAMBERLAIN.

Wilting coefficient in alkali soils.—In a series of 14 alkali soils, graduated according to their salt content, KEARNEY[16] has shown the wilting coefficients to be practically identical, but the time required for the exhaustion of the water available for growth steadily increased with the increasing salt content. The plants were proportionately smaller when the wilting coefficient was reached in the soils of greater salt content, that is, the presence of alkali increased the quantity of water transpired in producing a unit weight of dry matter. With too great a quantity of salts, pathological conditions were evident in the plants and the wilting coefficient was not reached.—GEO. D. FULLER.

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[15] WOYCICKI, Z., Über die mitochondrienänliche Gebilde in den Gonotokonten und Gonen bei *Malva silvestris* L. Sitzungsber. Warschauer Gesell. Wiss. **5**:167–182. *pls. 1, 2.* 1912.

[16] KEARNEY, THOMAS H., The wilting coefficient for plants in alkali soils. Bur. Pl. Ind. Circ. **109.** pp. 9. 1913.

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