

this displacement does not occur, the abscission plane of the peduncle is transverse through the base; if displacement has intervened, the abscission plane runs down the false internode, as it may be called, and, in extreme instances, as far as the node below. It should be stated that the displacement in question is always greater on the upper side of the dorsiventral shoot in such a manner as to cause a slight axial rotation of the peduncle. We must, therefore, conclude that abscission in the cotton is always through the base of the peduncle, and when it is decurrent it is so because the base of the peduncle is stretched out in consequence of the extension of the nodal zone. The position of the plane of separation is marked by a low ridge. There is, indeed, especially visible in flower buds and quite young bolls a slight groove parallel and close to the base, but this has no constant relation to abscission, contrary to Ball's statement.

THE ABSCISSION OF FLORAL PARTS.

The separation of the parts of the flower may, on similar grounds, be compared with that of the leaf. It occurs normally toward the close of anthesis, and, indeed, may be taken as its index, just as the unfolding of the flower-bud marks the beginning of this critical period. The whole matter is too complex and varied for brief presentation, so that it must suffice to make a mere summary. With the culmination of flowering, any of the organs taken separately, or any structural segregate of them, may be found to fall away. The sepals (e.g., in *Sanguinaria*, *Impatiens*, *Cruciferae*, etc.), petals, stamens, anthers or styles may do so, or the corolla as a whole in the sympetalae, or the corolla and androecium in one piece (*Malvaceae*) synchronously with, but independently of, the style, and so on. Conversely, these parts may be variously adherent, and wither *in situ*, affording another case of disharmony. Witness the frequent adherence of the calyx (*Rosaceae*), of the androecium (*Leguminosae*) and even the corolla (e.g., many Orchids, etc.), specific instances being afforded by the previously cited *Cereus Thurberi* by *Echinocactus Emoryi*, and by *Habenaria* among the orchids.

The position of the abscission plane, as in the leaf, is near the base of the organ or complex of organs involved. Its direction is, however, subject to more variation than it is in the leaf, and may run much more obliquely. For example, this direction in the corolla of the cotton flower varies from transverse (which is rare) to an obliquity of 45 per cent., which is usual. The style of this plant calls for special notice in this connection. Separation of this organ begins during the second afternoon of anthesis, and may usually be detected at about 3 o'clock. But instead of being confined to one level, it occurs at several, so