

The former, according to Reed and Smoot (16) is peculiar in having a layer of compressed pith cells enclosed in the vascular cylinder which remains unbroken until touched, although the cortex already shows complete abscission. Impact sufficient to break the vascular tissue allows the expulsion of the fruit, to a considerable distance. Those who have become familiar with the wild rice recall the fragile character of the stem below the spikelet, which breaks away at a slight touch. It needs not to do more than recall the various behaviours of plants which, like the compositae, set free their one-seeded fruits, sometimes singly, as in *Adenostemma* (Yapp, 17) and indeed in the majority of the family, and sometimes in groups, as in *Parthenium*, in which each of the five achenes is accompanied by two sterile flowers, while all the remaining staminate flowers are set free *en masse* (Lloyd, 8).²

Since the abscission of flowers and fruits results from a transverse or oblique cutting off of the stem, we should expect that the plane of separation would fall at or near the base of an internode. According to Hannig, however, this takes place immediately beneath the flower at the top of the pedicel in several species (*Nicotiana*, *Salvia*, etc.), and in the middle of the pedicel in others (*Solanum*, etc.). In still other species, the abscission plane falls just above a very small bract, these, therefore, according with the general rule. It may be mentioned in this connection that while separation near the base of the chief axis of the inflorescence may take place (*Mirabilis* and *Oxybaphus*, Hannig; *Impatiens Sultanii*), it is no less worthy of note that, in many plants, even after the usefulness of the inflorescence has passed, their chief axes remain as permanent encumbrances. I have been able to find the traces of them in *Parthenium argentatum* after the passage of five years or longer. Among our own plants one easily finds similar examples, e.g., *Rhus*, *Negundo*, *Syringa*, etc. And there are very many plants (palms, agaves, ferns, etc.) to which the leaves cling indefinitely, until they are worn or rotted away.

A case requiring special explanation is to be found in the Cotton (*Gossypium*), in which the plane of abscission may pass transversely through the base of the pedicel, or may extend downwards along the internode below, even as far as the next node. The diagram (Figure 3c) presents these diversities in graphic form. It has long been a puzzle to those concerned with this plant to account for this peculiarity, recorded in a bulletin on the diseases of the cotton by Atkinson (18) in 1897. To

² The separation of such parts may be passive and involve no special abscission mechanism of living cells.