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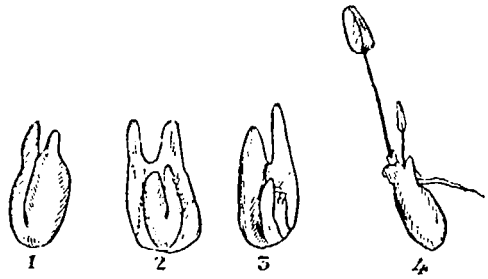
IX.—*Additional Observations on the Gemmæ of* Polygonum viviparum. By George Dickie, Esq., A.L.S., Lecturer on Botany in the University and King's College, Aberdeen.

A description of the Gemmæ of *Polygonum viviparum* having been already given in the 32nd Number of the Annals, the following account of their original development, and of their manner of growth, will serve to complete the history of these remarkable bodies. Having procured in the early part of the season, from a locality in this neighbourhood, very young flower stems, both flowers and gemmæ were carefully dissected; the former (which invariably occupy the summit of the flower stems) were much more advanced than the latter. Fig. 1. represents one of these magnified. Two nearly conical processes are seen placed side by side; on separating these, two similar bodies are seen in the interior alternating with the former; by tearing asunder these last, two others are seen similarly inclosed (figs. 2. and 3.); the difference in length



and breadth of the two innermost is now more conspicuous than in the two outer. Each of these concentric bodies may be considered, the one as a young leaf and the other a bud in its axil. They are all of a very delicate texture and pale colour; at this period the mass of cellular tissue enclosing starch grains is not developed, neither have the pink cells alluded to in the former paper yet appeared. The bud at the apex of each body is therefore first formed, and afterwards a quantity of fecula is stored up at its base.

A considerable number of perfectly formed gemmæ, shortly after being gathered from the mature flower stem, were planted in a pot of mould, the apex of each alone protruding from the soil; they were daily supplied with water. A few days after being planted, a young leaf appeared at the summit of each, the petioles made rapid progress, and some reached nearly the length of an inch a week after the first appearance of the

leaf (fig. 4.). Up to this period no roots are protruded; the young leaf is nourished solely by imbibition and by the fecula stored up at its base. It generally happens that no root is protruded until a second leaf has appeared; I have, however, seen a few cases in which a radicle appeared while only one leaf was yet visible. In most instances, shortly after the appearance of a second leaf, a root is protruded from the gem and always at one side near its neck (fig. 4.). This root is conical, at first entirely cellular and covered with minute fibrils; it constitutes the root of the plant, and the fibres on its surface are spongioles. A perpendicular section shows that this root has an organic connexion with the youngest of the leaves when two are produced previous to its appearance. May it not be admitted that these remarkable bodies present a miniature illustration of Professor Morren's investigations regarding the functions of the Pith in Plants? See Annals, No. 22, vol. iv. pp. 73–87.

X.—*On* Lychnis diurna *and* vespertina *of Sibthorp.* By Charles C. Babington, Esq., M.A., F.L.S., F.G.S., &c.

Thinking it right to bring before the public as early as is consistent with accuracy, any information that I may obtain concerning what may be denominated the contested parts of British descriptive botany, I make no apology for publishing specific characters for the two species of *Lychnis* which have been usually included under the name of *L. dioica.*

In both of them I find a tendency to change in the colour of the flowers; those of *L. diurna,* although most commonly red, may yet be sometimes found of so light a pink as to be called white; and those of *L. vespertina,* which are usually white, vary occasionally to pink. In both the flowers are usually diœcious, but plants of each of them are at times found with perfect stamens and pistils in the same flowers. For this reason I propose to drop the name of *dioica* and to adopt those conferred by Sibthorp.

I have not found any tendency to variation in the characters drawn from the forms of the calyx-teeth and the capsule, and the direction of the teeth of the latter.

I make no claim to originality in these characters, all of which have, I believe, long been detected and employed upon the continent; but only wish to bring them before our younger British botanists, to whom I suspect that they are totally unknown.