

15. *Lepidium Virginicum*, L.—That this species should have its cotyledons accumbent, while others of the genus have them incumbent, seems somewhat anomalous. On picking the embryo carefully out of the seed coats, however, I find a conformation that in a measure removes the difficulty. In the species which I have examined, viz., the present, *L. ruderale*, *L. campestre*, and, perhaps, *L. intermedium*, the cotyledons are continued, in the form of petioles, about half way down the radicle; the cotyledons, in fact, being transversely folded upon themselves, as stated and illustrated in Gray's *Genera* in the case of *Subularia* and *Senebiera*, the genera immediately preceeding *Lepidium*. In the other species of *Lepidium* the plane of division between these petioles, or "radicular" portions of the cotyledons, is parallel to the cotyledons proper, and consequently to the seed partition. In *L. Virginicum* this split is likewise parallel to the partition, and thus the "radicular" portions of the cotyledons, is incumbent, and so far the species is in accordance with its congeners. Where the cotyledons expand into a blade, they are turned sharply at right angles to the partition and become accumbent. If the embryo be held with the edge of the cotyledons towards the eye, it is the left blade which comes from the back of the radicle, and thus has the longer turn to make. *Cakile Americana*, Nutt., resembles *Lepidium Virginicum* in these particulars, except that the "radicular" portion of the cotyledons is relatively much shorter, and in one instance I found the blades of the cotyledons almost spirally bent over the radicle, so as to pass, as it were, through an incumbent stage.

I have also observed this narrowing of the cotyledons into a petiolar portion, greater or less, in *Nasturtium*, *Cardamine*, *Arabis*, *Barbarea*, *Erysimum*, and *Raphanus*, so far as represented in our local Flora; but in all these genera, the "radicular" split has conformed nearly or quite to the cotyledons, as they are incumbent or accumbent: in *Cardamine* it is long and somewhat inclined to one side. I borrow the application of the term *radicular* from Gray's *Genera*, to which admirable work I am indebted for much instruction on the subject of Crucifers. The term, however, when applied to the cotyledons, is open to objections.

Perhaps my experience in picking out the embryos may be of use to beginners, I boil the seeds for a moment in a porcelain saucer over a spirit lamp to soften the coats, and then, with needles inserted in a holder, and a fixed lens, have generally no difficulty in getting at the embryos by picking the coats to make an opening, and then carefully pressing the embryos out. In the case of *Lepidium*, however, there is a difficulty. Immersion, particularly in hot water, causes the mucilage with which the seed coat is charged, to swell and envelop it in a beautiful crystal sphere, much larger than the seed itself. This slippery substance interferes sadly with the handling of the seed. It may be rubbed off, but I find it better to exclude the water by boiling the pods entire. The seed of *L. campestre* has a very thick coat, and can not readily be picked to pieces, but, on account of this very thickness, a good piece may be cut from the end, without injuring the embryo, which may then be squeezed out. Considering how many seeds a well grown *Lepidium*





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