

and gradually folds it inwards till its sides meet at the middle groove along the back of the stem. The anterior part of the bulb, during the process of filling up the stem, exhibits a series of conical-shaped membranes, as is seen in the section, Fig. 231; the points of the cones being directed upwards, and their intervals being occupied by the spongy substance in different stages of consolidation, and more perfected in proportion as they are situated nearer the apex of the stem.

While the construction of the feather, in its different stages, is thus advancing from below, those parts which are completely formed, are rising above the surface of the skin, still enveloped in the capsule which originally protected them, but the upper portions of which, from the action of the air, and the obliteration of the vessels that nourished them, now decaying, shrivel and fall off in shreds, allowing the successive portions of the feather to come forth, and the laminæ to unfold themselves as they rise and assume their proper shapes. This successive evolution proceeds until the principle parts of the stem and of the vane are completed; and then a different kind of action takes place. The posterior part of the bulb now contracts itself, and bringing the edges of that surface of the stem closer together, at length unites them at the superior orifice (o,) Fig. 228; where the laminæ, which follow these lines, also terminate. Having thus performed the office assigned to it, it ceases to be nourished, and is incapable any longer of depositing a horny covering to the feather: all that remains of its substance is a thin membrane which adheres to the outside of the tubular part or barrel of the quill, and which must be scraped off before the latter can be used as a pen. The tubular part is the product of the anterior part of the bulb, which now ceases to deposit the spongy substance, but forms a transparent horny material over the whole of its external surface; but as it retires towards the root, it leaves a succession of very thin pellucid membranes, in the form of cones, which, when dried, form what is termed *the pith* of the quill. The