

clear idea of the several steps of the process to be described, to advert to the structure of a feather in its finished state. For this purpose we need only examine a common feather, such as that represented in Fig. 228, where *s* is the posterior surface of the solid stem, which, it will be perceived, is divided into two parts by a longitudinal groove, and from either side of which proceed a series of laminæ, composing, with their fibrils, what is termed the vane of the feather (*v.*) The lines from which these laminæ arise, approach one another at the lower part of the stem, till they meet at a point, where the longitudinal groove terminates, and where there is a small orifice (*o.*) leading to the interior of the quill. From this part the transparent tubular portion of the quill (*τ*) commences; and at its lower extremity (*l*) there exists a second, or lower orifice.

The entire organ which forms the feather, and which may be termed its *matrix*, is represented in Fig. 229, when it has attained the cylindric form already described; of which *a* is the apex, or conical part, that rises above the cuticle, and *b* the base, by which it is attached to the corium, or true skin. A white line is seen running longitudinally the whole length of the cylinder, and another, exactly similar to it, is met with on the opposite side: the one corresponds in situation to the front, and the other to the back of the stem of the future feather. On laying open the matrix longitudinally, as is shown in Fig. 230, it is found to be composed of a sheath or capsule, and of a central pulpy mass, termed *the bulb*. The capsule consists of several membranous layers (*c, e, s, l,*) which are more consolidated near the apex, and become gradually softer and more delicate, as we trace them towards the base of the matrix, where their formation is only beginning to take place.

The laminæ and their fibrils, the assemblage of which constitutes the vane of the feather, are the parts which are first formed; and their construction is effected in the space between the outer capsule (*c.*) and the central bulb (*b.*) in a mode which is exceedingly remarkable, and different from