

generally observed in the human spermatozoön, though several observers have claimed the existence of a spiral membrane and the head-cap undoubtedly exists in the earlier stages of the development of the spermatozoön, though it may later be lost.



FIG. 4.—HUMAN SPERMATOZOÖN. 1, Front view, 2, side view of the head; *c*, terminal filament; *k*, head; *f*, tail; *m*, middle-piece. (After Retzius.)



FIG. 5.—SPERMATOZOÖN OF RAT. *h*, Head; *hc*, head-cap; *mp*, middle-piece; *n*, neck.—(Jensen.)

To understand the significance of the various parts entering into the composition of the spermatozoön a study of their development is necessary, and since the various processes of spermatogenesis have been much more accurately observed in such mammalia as the rat and guinea-pig than in man, the description which follows will be based on what has been described as occurring in these forms. From what is known of the spermatogenesis in man it seems certain that it closely resembles that of these mammals so far as its essential features are concerned.