V. SUMMARY

The study of the cellular associations in the seminiferous epithelium reveals that three types of spermatogonia (type A, intermediate and B) are found in the mongoose and ram. A total of 12 and 14 stages of the cycle has been observed in the seminiferous epithelium of the mongoose and ram respectively. In both animals, type A spermatogonial cells occupy the first cycle and the intermediate spermatogonia harbour first 4 stages (from I to IV). However, stage IV of ram also possesses B type spermatogonia and these cells continue to be present in stages V - VII. Type B spermatogonia are confined to stages V and VI in mongoose. Preleptotene (the so-called resting) spermatocytes are found in two stages (Stages VI & VII in mongoose and VII and VIII in ram) in these animals. Leptotene occupies three stages (VIII, IX and X) in mongoose and four (IX, X, XI, and XII) stages in ram. Zygotes are present in last two stages (XI and XII in mongoose and XIII and XIV in ram). Pachytene occupies most of the stages of the cycle in both animals. In mongoose it occupies I to XI stages while the XII stage is occupied by the diplotene to metaphase-II stages of spermatocytes. In case of ram pachytene occupies I to XII stages in sharp contrast to stage XIII enshrining diplotene and diakinesis and stage XIV containing metaphase-I and metaphase-II spermatocytes. The fourth cycle of the seminiferous epithelium begins with the emergence of spermatids. In mongoose 15 steps of spermatid development require 1.6 cycles to produce mature spermatozoa, and in the ram 18 such steps are completed in about 1.7 cycles.
The autoradiographic studies on the chronology of meiosis and spermiogenesis suggests that the duration of leptotene is at least 2.80, 2.75 and 2.10 days in the mongoose, ram and duck respectively. The pachytene is also a prolonged event and lasts for about 8.00, 8.33 and 2.00 days in these animals respectively. However, the duration of zygotene stage, as well as all the stages from diplotene to metaphase-II, is extremely short and never exceeds a day.

Spermiogenesis requires nearly 18 days in the mongoose in which both meiosis and spermiogenesis are completed by 30.02 days. In rams the individual duration of spermiogenesis and the total duration of meiosis and spermiogenesis never exceeds 19.50 and 31.60 days respectively. As compared to these two mammals, the duration of spermiogenesis in duck is in between 12.25 and 12.65 days. As the radioactive spermatozoa in this bird were detected for the first time at 16.90 day following the administration of H3-thymidine, it may be concluded that both meiosis and spermiogenesis completed in this species within 16.90 days following the initiation of meiosis.