

PART I.

NORMAL PREGNANCY.

Ovulation

THE ovary is the storehouse in which egg-cells (oocytes) are preserved, and from which they are periodically liberated during the years comprised between puberty and the menopause. *Ovulation* is the process by which oocytes are discharged from their protecting chambers—the Graafian follicles—into the peritoneal cavity; this process includes the two stages of maturation (ripening) and dehiscence (rupture) of the follicles. A follicle in the resting phase (*i.e.* before ripening has commenced) lies deeply in the cortical layer of the ovary, separated from the surface by a stratum of ovarian tissue of variable thickness. In the ripening process two changes occur: (1) it first approaches the surface, and finally becomes partly extruded, forming a protuberance on the ovary, the germ-epithelial covering at that spot being lost; (2) it increases greatly in size. The structure of a ripening follicle is shown in Fig. 1. The process of extrusion has not been fully studied, but there occurs an undoubted displacement of the enlarging follicle towards the surface. The causes of rupture are also obscure and probably complex, and many different views concerning them have been advanced. A great increase in the amount of liquor folliculi occurs during maturation, partly by transudation from the congested ovarian vessels, and partly perhaps by secretion from the proliferating cells of the granulosa; towards the end of the process hæmorrhage may also occur into the follicle, causing a sudden increase in tension which would easily determine rupture. Clark has pointed out that there is great proliferation of the granulosa cells during ovulation, which he believes also increases the intra-follicular tension. In addition, degenerative processes of the nature of necrosis occur in that part of the wall of the follicle which lies exposed upon the surface, and is unsupported by the ovarian stroma,