

Use the color from page 158 for the ovary, A, and uterine tube, M. Use red for K and R, yellow for L, blue for S, and very light colors for C-1, M, O, and R (7). Color the development of the female germ cell in both upper and lower views of the sectioned ovary. The oocyte, C, is colored through ovulation. In the large illustration, color the background stroma, B, gray.

The **ovaries**, each 3 cm long and 1.5 cm wide, or smaller, are on the side of the true pelvis and attached to the posterior layer of a double fold of parietal peritoneum (**broad ligament**), draped over the ovaries, uterine tubes, and uterus like a blanket hanging over a clothesline runs from side to side. See page 160. Between the ovary and the opening (*fimbria*) of the **uterine tube** is a space continuous with the peritoneal cavity into which few enter and none return. On expulsion from the ovary, the ovum must avoid this abyss or be lost in space and miss the opportunity of a lifetime.

The ovary is lined with a single layer of cuboidal cells derived from mesothelium. Primordial ova migrate from the embryonic yolk sac into the **ovarian stroma** and proliferate. Hundreds of thousands of these develop; only a few hundred ever reach maturity.

The two primary activities of the ovary are (1) the development of female germ cells (*ova*) in the follicular phase, and (2) the secretion of *estrogen* and *progesterone* in the luteal or secretory phase. The ovary reveals many follicles in various stages of development in a cushion of cells and loose connective tissue (*ovarian stroma*). An ovarian follicle consists of an immature epithelial germ cell (**oocyte**) surrounded by one or more layers of nongerminating support cells.

Development of an **ovum** starts with the **primordial follicle**—an oocyte with one layer of follicular cells. The oocyte increases in size and maturity as the follicle cells increase in number around it, forming a **primary follicle**. In **secondary follicles**, a small cavity (*antrum*) appears, filled with follicular fluid. This antrum continues to expand at the expense of the follicle cells, which are pushed away from the oocyte except for a single layer of cells (**mature** or **Graafian follicle**). Those cells secrete estrogen during the follicular phase of the reproductive cycle. Follicles that cease to develop at any stage are said to be "atretic."

On about the 14th day of the cycle (see "Ovarian Cycle"), a glycoprotein coat—the *zona pellucida*—surrounds the ovum of the mature follicle, fully prepared for ovulation. A *corona radiata* of cells and the zona pellucida-lined ovum burst from the follicle into the waiting fingers (*fimbriae*) of the uterine tube. The **ruptured follicle**, its oocyte discharged, involutes. Some bleeding and clotting goes on (**corpus hemorrhagicum**) as the follicle cells transition into a **corpus luteum**, characterized by accumulating large amounts of lipid necessary for subsequent secretion of steroid hormones.

The corpus luteum secretes estrogen and progesterone during this *luteal phase* of the cycle; in the event of pregnancy, it will support the developing embryo/fetus for up to three months with these secretions. Should fertilization not ensue, the corpus luteum will degenerate as a **corpus albicans**. Follicles and corpora albicans/lutea collectively, relating to two or more different but sequential cycles, can usually be seen in the ovary at any one time.

