MD REMEMBERS: Regnier De Graaf

This month in Delft an international symposium on ovarian function commemorates the tercentenary of the death of Regnier de Graaf, the Dutch physician who first established experimentally that the mammalian egg is produced in the ovary or female "testis" as it was then called.

A year before he died on August 17, 1673 at the age of 32, de Graaf published his book on the reproductive system* in which he stated: "All men and animals take their origin . . . not from an egg formed in the uterus by semen, as Aristotle says, nor by a seminal virtue, following Harvey, but from an egg existing before coitus in the female testicles."

From his studies in rabbits De Graaf demonstrated that the ovum originates in the ovary, passes down the fallopian tube and develops in the uterus. Ironically his sole error concerned the ovarian follicle which was named for him: although he concluded that this structure released an egg when it ruptured he assumed that the whole follicle was the ovum which was not discovered until 1827 by Karl von Baer.

In one treatise De Graaf said his observation on the reproductive organs of women were "presented, not to serve for libidinage, but for the advancement of Truth and Medicine." He held that there was no connection between the moon and menses "for the former holds an immutable course while the latter varies." Menstruation was not caused by a plethora of blood but a general fermentation and as a result "the head feels bad, the feet heavy and the stomach deranged."

An earlier dissertation by De Graaf described the male reproductive organs, and his finding that the testis was a mass of very fine

Regnier De Graaf

vessels more than 20 ells in length. He reported animal experiments showing that the semen is "engendered and formed in the testes" and that the primary cause of erection is the blood supply with contributary effects of the muscles and nerves.

While De Graaf's studies dispelled the ancient theory that the male "seed" was solely responsible for the offspring's characteristics, ovists and spermists continued to debate the relative importance of the maternal and paternal contribution. Stated De Graaf: "I incline to neither side of this dispute, for I believe that women contribute nothing to generation but the eggs."

Background. The son of a celebrated architect-inventor, Regnier de Graaf was born on July 30, 1641 in Schoonhaven, a town between Rotterdam and Arnheim. By the time he was 18 he was studying medicine in Utrecht and in 1663 he moved to Leyden where one of his professors was François de la Boë (Sylvius).

As an undergraduate De Graaf produced a temporary pancreatic fistula in a dog and collected a small amount of the gland's secretion through a cannula made of a wild goose quill. His doctorate thesis on this research was the first study of the pancreas and its secretion until the time of Claude Bernard.

In 1665 De Graaf received his M.D. from the University of Angers and went to Paris where he attended gatherings of the Académie des Curieux de la nature. The following year he began to practice in Delft, but in 1668 while traveling in France he wrote to Sylvius: "I put all my energies to the dissection of bodies which I found in sufficiently great quantity; I preferred most to dissect the pancreas and the genital parts since I found there constantly new things, unremarked by anatomists before me."

Returning to practice, De Graaf published a treatise on clysters with a picture of an instrument that he designed for self-administering purges.

The year that De Grfaaf's book appeared he was married but there are indications that he was in delicate health in his twenties and he died apparently of plague.

** De Mulierum organis generationi inervientibus.*