

## Pages from History

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### GEORGIOS PAPANIKOLAOU

May 13, 1883 - February 19, 1962

Dr Georgios Papanicolaou was born in a small coastal town of Kymi, Evia, Kingdom of Greece. His father, a general practitioner was at one time Mayor of the town.

Papanicolaou studied at the University of Athens, where he received his medical degree in 1904. He subsequently worked as a physiologist on the oceanographic vessel L'Hirondelle of Prince Albert I of Monaco. Six years later he received his Ph.D. from the University of Munich, Germany & served in the Greek army during the Balkan wars when he was associated with Americans, volunteers of the Greek cause. After that he had also spent time at the universities of Jena and Freiburg.

In 1913 he emigrated to the U.S. in order to work in the department of Pathology of New York Hospital and the Department of Anatomy at the Weill Medical College of Cornell University. There he

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began his research on the oestrous cycle of mammals, using cellular samples from the vagina of guinea pigs. That year he had also undertaken a study of vaginal fluid of women suffering from uterine cancer, in hopes of observing cellular changes over the course of a menstrual cycle.

Papanicolaou discovered that abnormal cancer cells could be plainly observed under a microscope. "The first observation of cancer cells in the smear of the uterine cervix," he later wrote, "gave me one of the greatest thrills I ever experienced during my scientific career."

In 1923, Papanicolaou told an incredulous audience of physicians about the noninvasive technique of gathering cellular debris from the lining of the vaginal tract and smearing it on a glass slide for microscopic examination as a way to identify cervical cancer.

He first reported that uterine cancer could be diagnosed by means of a vaginal smear in 1928, in his paper, "New Cancer Diagnosis," at a medical conference in Battle Creek, Michigan. Papanicolaou introduced his low-cost, easily performed screening test for early detection of cancerous and precancerous cells.

Papanicolaou with gynecologist Herbert Traut, published a paper "The Diagnostic value of vaginal smears in carcinoma of uterus" in 1941 in American Journal Of Obstetrics & Gynecology. The importance of his work was recognized in 1943 in the monograph "Diagnosis of Uterine Cancer by the Vaginal Smear," based on a study of over 3000 cases. The book discusses the preparation of vaginal and cervical smears, physiologic cytologic changes during the menstrual cycle, the effects of various pathological conditions, and the changes seen in the presence of cancer of the cervix and of the endometrium of the uterus. He thus became known for his invention of the Papanicolaou test, commonly known as the Pap smear or Pap test, which is used worldwide for the detection and

prevention of cervical cancer and other cytologic diseases of the female reproductive system.

In 1954 he published another memorable work, the "Atlas of Exfoliative Cytology", thus creating the foundation of the modern medical specialty of Cytopathology.

In 1961 he moved to Miami, Florida, to develop the Papanicolaou Cancer Research Institute at the University of Miami, but died in 1962 prior to its opening in New Jersey, USA.

Although formally retired from Cornell university in 1951, his activity continued undiminished until his death in 1962 at the age of 78 yrs.

Dr. Papanicolaou was the recipient of the Albert Lasker Award for Clinical Medical Research in 1950.

Papanicolaou's portrait appeared on the obverse of the Greek 10,000-drachma banknote of 1995-2001, prior to its replacement by the Euro.

In 1978 his work was honored by the U.S. Postal Service with a 13-cent stamp for early cancer detection.

## Referances

1. Winifred Gray. Diagnostic Cytopatholgy. Churchill livingstone, 1995; 3-6.
2. O'Dowd MJ, Philipp EE. The History of Obstetrics & Gynaecology. London: Parthenon Publishing Group; 1994: 547
3. Papanicolaou GN, Traut HF. "The diagnostic value of vaginal smears in carcinoma of the uterus". American Journal of Obstetrics and Gynecology. 1941; 42:193.