

This Week's Citation Classic

Noyes R W, Hertig A T & Rock J. Dating the endometrial biopsy.
Fert. Steril. 1:3-25, 1950.

[Free Hosp. Women, Brookline, MA and Dept. Gynecology, Harvard Med. Sch., Cambridge, MA]

Rapid changes in endometrial histologic patterns following ovulation permit assignment of 'dates' which correlate well with other timing measures of ovulation in the study of human fertility. This methodology paper includes a graph of histologic changes during the menstrual cycle, a series of representative photomicrographs, and clinical correlations among 300 patients. [The SC][®] indicates that this paper has been cited over 330 times since 1961.]

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"John Rock, pioneer fertologist now living in Temple, New Hampshire, and M. K. Bartlett first published on endometrial dating in 1937.¹ Arthur Hertig, eminent embryologist and gynecologic pathologist now at the New England Primate Center, improved the method² and used it extensively in his famous research with John Rock on early human ova.

"I first encountered endometrial dating in 1948 when I was a volunteer fellow in pathology at the Free Hospital for Women, Brookline, Massachusetts, where Hertig was chief pathologist. I learned much from an unpublished graph contributed by J. P. F. LaTour, currently professor of gynecologic oncology at the McGill University School of Medicine. Some of the younger clinicians, such as myself, were still wondering whether

or not endometrial responsiveness could be accurately dated. Sensing this, Hertig suggested that I undertake, as a special project, a 'blind' comparison of endometrial dates with clinical end-points such as basal body temperature and onset of succeeding menses.

"Just at this time, Pendleton Tompkins, editor of the future journal *Fertility and Sterility*, requested Hertig to submit a lead manuscript for volume 1. I readily agreed to add my clinical correlation results to this worthwhile cause, and to get some representative photomicrographs taken. But I was completely unprepared to find my name as first author on the published paper. Such is the generosity of truly great people like Arthur Hertig and John Rock. The photomicrographs were made by Leo Goodman at the Boston City Hospital, and I drafted the captions.

"The original interest in the 1950 paper may have been sustained by follow-up studies such as my report with J. O. Haman on 1,007 biopsies from infertile women,³ my papers on the uniformity of secretory endometrium⁴ and on the underdeveloped secretory endometrium,⁵ plus chapters in books by Greenblatt,⁶ Joel,⁷ and Norris, Hertig, and Abell.⁸ Endometrial dating has been found to correlate well with the ovulatory peak of luteotrophic hormone, and with electron microscopic and biochemical measures of endometrial responsiveness—all the work of many others. I am naturally pleased that this paper has been so widely cited, and I attribute this to a continuing need for an objective secretory phase time scale until someone discovers a way to pinpoint the moment of ovulation."

1. **Rock J & Bartlett M K.** Biopsy studies of human endometrium. *J. Amer. Med. Ass.* **108**:2022-8. 1937.
2. **Hertig A T.** Diagnosing the endometrial biopsy. (Engle E T. ed.) *Proceedings: conference on diagnosis in sterility.* Springfield, IL: Charles C. Thomas. 1946. p. 93-128.
3. **Noyes R W & Haman J O.** Accuracy of endometrial dating. *Fert Steril.* 4:504-17. 1953.
4. **Noyes R W.** Uniformity of secretory endometrium, multiple sections removed from 100 uteri, *Fert. Steril.* 7:103-8. 1956.
5. The underdeveloped secretory endometrium. *Amer. J. Obstet. Gynecol.* **77**:929-45. 1959.
6. Endometrial dating for the detection of ovulation. (Greenblatt R. ed.) *Ovulation. stimulation. suppression, detection.* Philadelphia: J.B. Lippincott. 1966. p. 319-28.
7. Endometrial biopsy. (Joel C A. ed.) *Fertility disturbances in men and women.* Basel: S. Karger, 1971. p. 399-412.
8. Normal phases of the endometrium. (Norris H J. Hertig A T & Abell M R. eds.) *The uterus.* Baltimore: Williams and Wilkins, 1973. p. 110-35.