author favors. In conclusion, it would seem that the contribution of the present book is biographical rather than scientific. The survey brings together some interesting quotations on sociopolitical questions from the writings of 24 well-known scientists, but it appears to accomplish little else.

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Contributions to embryology. (Carnegie Institution Publ. 583, Vol. XXXIII, Nos. 213 to 221.) Washington, D. C.: Carnegie Institution of Washington, 1949. Pp. iii + 186. (Illustrated.) $8.50 paper; $9.25 cloth.

Volume 33 of the *Contributions to embryology* comprises nine papers. Four deal with the morphology and physiology of the reproductive tract of the rabbit (Reynolds) and of the macaque (Ramsey, Hamilton, and Sturgis); four concern early human development (Hertig and Rock, Streeter, Sensenig, and Wharton), and one traces the evolutionary trends in the palatine ridges of Primates (Schultz). In all, there is the stimulating quality of morphology and embryology presented in their dynamic rather than their static aspects, and an awareness of sequential relationships and of the interdependence of structure and function. The volume is, like its predecessors, beautifully printed and illustrated. Several of the papers, notably those of Streeter, Sensenig, Ramsey, and Reynolds, carry useful diagrams summarizing their main observations.

Reynolds' paper "Adaptation of uterine blood vessels and accommodation of the products of conception" continues his reports on uterine-fetal relationships. Observations on uteri of pregnant rabbits demonstrate the increasing ischemia of the antimesometral uterine wall over the conceptus up to the 22nd day of gestation, simultaneously with the persistence of an adequate circulation on the mesometral side, where the placenta is located. Thereafter, as the conceptus changes from a spheroidal or oblate to an oval shape, the blood again flows readily in all parts of the uterine circulation.

The paper by Ramsey, "The vascular pattern of the endometrium of the pregnant rhesus monkey," correlates well with Reynolds' observations on the uterine circulation and the phases of uterine growth and of uterine stretching in the pregnant rabbit and also provides correlative support for Spanner's emphasis on the importance of marginal drainage in the mature human placenta.

In "Observations on the cervical mucosa of the rhesus monkey," Hamilton correlates the changes in height and secretory activity of the cervical epithelium during the macaque's menstrual cycle with the blood estrogen level determined for the human by Markee and Berg. She concludes that the cervical epithelium is under the control of estrogen and that the release of its secretion "might . . . be considered the cervical counterpart of menstruation" (p. 100).

In his paper on "Rate and significance of atresia of the ovarian follicle of the rhesus monkey," Sturgis identifies and times three stages in follicular atresia in the macaque by relating them to normal corpus luteum development. He tentatively suggests that the atresia of the early preovulatory follicles each month may be involved in the control of the pituitary-ovarian balance concerned with the release of but one egg per month and the subsequent formation of its corpus luteum.

Hertig and Rock's paper is the fourth one describing early "timed" human embryos to appear in the *Contributions.* This paper, "Two human ova of the pre-villous stage, having a developmental age of about eight and nine days respectively," presents in detail the structure and relationship to the endometrium of an 8-day (Carnegie #8155) and a 9-day (Carnegie #8171) human embryo first reported briefly in 1944. Both provide additional evidence that implantation occurs normally on solid endometrium and not in the mouths of uterine glands. The 8-day embryo is prelacunar as well as previllous; the 9-day one is unique in being the first specimen "seen thus far in which the early primordium of the uteroplacental circulation has appeared" (p. 180).

In his contribution, "Developmental horizons in human embryos (fourth issue): a review of the histogenesis of cartilage and bone," Streeter follows the development of the humerus from the arm bud (horizon XII) through 1) the condensations and differentiations of the skeletomuscle primordium (horizons XV–XVI), 2) the five phases of differentiation of cartilage (horizons XVII–XXIII), and 3) the ossification process from its beginning (horizon XXII) through 74 days (ovulation age). He reports for the first time crystalloid phenomena in certain cartilage cells of some embryos of horizons XIX–XXIII and comments on their possible significance. This last paper of Dr. Streeter's embodies the accuracy, the careful observations, and the clarity and rare turns of expression that are earmarks of his scientific writings. Sensenig's paper entitled "The early development of the human vertebral column" is an interesting complement to Streeter's paper. He follows the differentiation of the sclerotome of the somite into the definitive vertebra and certain of its associated structures, beginning with embryos 2.0–3.0 mm in length (horizon X) and ending with an embryo 80.0 mm CR.

The report on "Double ureters and associated renal anomalies in early human embryos" by Wharton describes an extra ureter in two human embryos (9.0 and 9.6 mm, horizon XVI). These anomalies are discussed in relation to the steps in the normal development of the kidney.

Dr. Schultz's paper "The palatine ridges of Primates" is interesting from the standpoint of embryology because he includes palatine patterns of both nonhuman and human Primate embryos in his series and compares them with each other, with those of adult Primates and with those of lower mammals. His conclusions concern the probable palatine pattern in the primitive common ancestor of the Primates and the evolutionary trends undergone.

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