A Birth Control Alternative

"RESEARCH ON CONTRACEPTION STILL IN THE doldrums" (C. Holden, Reproductive Biology Special Issue, News, 21 June, p. 2172) is an excellent review of the birth control field, with one glaring exception. It omits "sterilization," specifically trancervical chemical sterilization using Quinacrine, which is the most important advance in birth control since the Pill. In an office procedure requiring only 5 min, 252 mg of Quinacrine in pellets is inserted into the uterus. The medication dissolves and flows into the oviducts (Fallopian tubes), where an inflammatory reaction leads to scar blockage. The procedure must be carried out twice, a month apart, and the scars can be seen on ultrasound.

Quinacrine sterilization (QS) is one-tenth the cost and has one-fiftieth the complication rate of surgical sterilization involved in laparoscopy. Kessel (*1*) reported 100,000 documented cases of QS with no mortality and no complications serious enough to require surgery. The evidence for the safety of this drug is overwhelming. It has been taken in large doses by more than 100 million people for over 70 years to treat and prevent malaria and is also used to treat giardia, tapeworm, lupus, and rheumatoid arthritis. Jaimie Zipper, who developed the method (*2*), has followed 1500 patients for over 20 years and reports no serious long-term effects, and there is no evidence of any increase in the incidence of cancer (*3*). It was not surprising that the U.S. Food and Drug Administration (FDA) granted approval for a phase I clinical trial of QS to be carried out at the Children's Hospital of Buffalo. This is nearly completed, and filing for FDA approval of phase II/III is being prepared.

Side effects of QS include itching, cramps, and headache, transient events that are easily managed. Although the pregnancy rate with Quinacrine is higher than with surgical sterilization (about 2% for QS versus about 1% for surgical sterilization), there are serious problems associated with surgery itself: The trocar may perforate the bowel, bladder, or the great blood vessels of the pelvis, or the cautery may burn viscera. None of this occurs with QS. Laparoscopic tubal ligation carries an admitted risk of three to 10 deaths per 100,000 (*4*, *5*). Surgical sterilization requires a general anesthetic with attendant risks, whereas QS needs no anesthesia.

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References
1. E. Kessel, *Adv. Contraception* **12**, 69 (1996).
2. J. A. Zipper, L. P. Cole, A. Goldsmith, R. Wheeler, M. Rivera, *Int. J. Gynecol. Obstetr.* **18**, 265 (1980).
3. D. C. Sokal, A. Dabancens, R. Guzman-Serani, J. Zipper, *Fertil. Steril.* **74**, 169 (2000).
4. J. Phillips, Ed., *Membership Surveys and Complication Reports* (American Association of Gynecologic Laparoscopists, Sante Fe Springs, CA, 1998).
5. G. Chamberlain, J. C. Brown, Eds., *The Report of the Working Party of Confidential Enquiry into Gynecological Laparoscopy* (Royal College of Obstetricians and Gynecologists, London, 1978).

Ribonucleases in Ruminants

IN THE RECENT REVIEW BY S. A. BENNER *ET al.* ("Planetary biology—paleontological, geological, and molecular histories of life," 3 May, p. 864), Fig. 4 shows an evolutionary tree, which was previously published by the authors (*1*) and which was reproduced from a 1986 paper of ours (*2*), with two changes: (i) A clade of pronghorn antelope and giraffe is not connected with bovids, but with deer, and (ii) hippopotamus and pig are joined, contrary to our finding that they are separate divergences from an ancestral artiodactyl (*2*). The sepa-