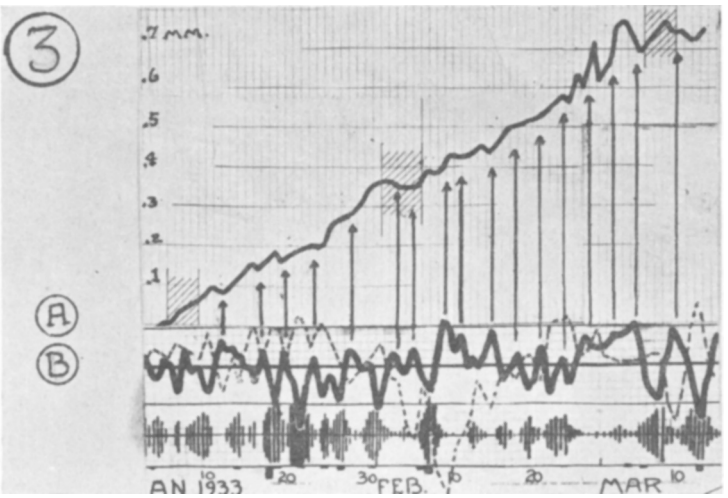

FIG. 1.

On the small chart A represents the nail growth in millimeters, B is the barograph, and menstrual periods have been indicated by cross hatching.

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Action of Theelol (Tri-Hydroxy-Oestrin) on Uterine Fistulae in the Unanesthetized Rabbit.

SAMUEL R. M. REYNOLDS. (Introduced by Carl J. Wiggers.)

From the Department of Physiology, Western Reserve University School of Medicine, Cleveland.

The present paper presents observations relating to the effect of theelol (tri-hydroxy-oestrin) on the quiescent non-gravid uterine fistula of the castrated adult rabbit. The method of recording such contractions has been described.[1, 2] The data embody observations following the intravenous and subcutaneous administration of theelol (Parke, Davis and Co.) totalling 19 times in 8 rabbits. The uterine response to theelol was as follows:

Intravenous Administration. Three castrated rabbits with quies-

[1] Reynolds, S. R. M., *Am. J. Physiol.*, 1930, **92**, 420.

[2] Reynolds, S. R. M., and Friedman, M. H., *Am. J. Physiol.*, 1930, **94**, 696.

cent uteri were treated with theelol as follows: Four divided doses covering 8 hours were given and records of motility obtained before, during, and from 24 to 48 hours following the injections. The amount injected was comparable to the threshold amounts of theelin (keto-hydroxy-oestrin) similarly administered as reported before.[3] In each of the records of the present series, a beginning of rhythmical motility by 10 hours following the first injection occurred and by 24 hours the contractions were of duration, amplitude and frequency which was entirely comparable to and indistinguishable from those which follow intravenous administration of theelin. Moreover, they were similar to the contractions one usually sees in "oestral" rabbits.[3] The waning of the action of theelol was likewise similar to that following administration of theelin, occupying a second 24 hours or more.

Subcutaneous Administration. The rabbits used in this work were intended primarily for drug studies on the effects of certain calcium salts on the uterus. It was desired, therefore, to have "standard" animals which were easily procurable and ready for use within a day or so. Inasmuch as one cannot safely predict the sexual state of intact rabbits unless they happen to be *post partum* and so possibly in heat, we decided to employ recently castrated (3 days to a week or 2) rabbits with uterine fistulae already prepared. The necessity of a large colony and time-consuming breeding was thus obviated. The rabbits so prepared (2-3 kg.) received 25 r.u. of theelol, irrespective of weight, in a single subcutaneous injection on the day preceding an experiment. This was done 16 times with theelol. In only 2 instances did we fail to elicit rhythmic motility in a manner indistinguishable from that observed many times with theelin similarly administered. Upon repetition of the injection in the 2 failures, marked motility was subsequently induced. The failures therefore may probably be explained on the basis of inadequate dosage. Withdrawal of theelol results in quiescence of the fistula in several days. This accords with earlier observations on the effect upon uterine motility of castration at a time when the ovaries contain large follicles.[3]

In conclusion one may say that the 2 isolated oestrogenic substances, tri-hydroxy- and keto-hydroxy-oestrin, exert similar effects upon uterine motility when one employs the uterine fistula technic. Whether this signifies merely similar action or interconversion of one substance into the other *in vivo* is, of course, a matter of conjecture.

[3] Reynolds, S. R. M., *Am. J. Physiol.*, 1931, **97**, 706.