ment with the luteinizing fraction (LH). The 11 animals in this group each received 3 to 5 mg. LH powder daily. The average ovarian weight for this group was 16 mg. (range, 10 to 23 mg.). Four separately prepared batches of LH were used on these animals with about equal success. In some cases the persisting corpora lutea could no longer be identified by gross examination at autopsy while in others a few degenerate appearing corpora remained. Microscopic study showed that extensive involution of the luteal tissue had occurred. The mechanism by which this involution is brought about is not clear but it appears to be due to a direct action on the corpora lutea. Whether this reaction can be attributed to the LH itself or to some closely allied substance contained in the LH preparation is not known.

Summary. The character of persisting corpora lutea in hypophysectomized rats was not influenced by the injection of oestrin, progestin or the follicle stimulating hormone of the hypophysis. The luteinizing fraction, however, caused almost total regression of the corpora lutea with marked diminution of ovarian weight.

8921 C

Effect of Isoartemisin on the Circulatory System.

WILLIAM ELLSWORTH EVANS, JR. (Introduced by J. C. Krantz, Jr.)

From the Department of Pharmacology, School of Medicine, University of Maryland.

When santonin is administered to animals, a small amount of it is excreted in the urine in the form of oxysantonins. Jaffé[1] obtained a-oxysantonin and b-oxysantonin from the urine of dogs and rabbits, respectively, in this manner. Since the sterioisomeric oxides are apparently detoxification products of santonin, a comparative study of the pharmacological properties of isoartemisin or d-oxysantonin[2] (later called a-oxysantonin[3]) and of santonin was undertaken.

The action of isoartemisin on the frog heart has been studied by Trendelenburg.[4] The effect produced by perfusion of a 1:5000

1 Jaffé, *Z. Physiol. Chem.*, 1897, **22**, 538.

2 Wedekind and Tettweiler, *Ber*, 1905, **38**, 1848.

3 Wedekind and Tettweiler, *Ber.*, 1931, **64B**, 387.

4 Trendelenburg, *Arch. Exp. Path. Pharmakol.*, 1915, **79**, 190.

solution was found to be somewhat weaker than that of santonin in equivalent concentration.

The effect of isoartemisin on the peripheral circulation has not been reported.

1. *Influence on Cardiac Rate, Amplitude of Contraction, and Output.* The method employed for perfusion of the frog heart was essentially the same as that described by Sollman and Barlow.[5] In addition, the right aorta was ligated as close to the heart as possible and the left aorta was cannulated close to the bifurcation.

After making a normal heart record and measuring the output per 5 minutes while perfusing Howell-Ringer solution, a saturated solution of isoartemisin in Howell-Ringer solution (80 mg./liter) was perfused. Five experiments were performed. Only Howell-Ringer solution was perfused in 5 control experiments.

Although there was an occasional decrease in amplitude and an irregularity of contraction when the isoartemisin solution was first perfused, the heart beat soon returned to normal. The cardiac output was not significantly affected over a 30-minute period.

2. *Effect on Peripheral Circulation.* The technic employed for perfusion of frog legs was that devised by Laewen[6] and improved by Trendelenburg.[7] Instead of injecting the saturated solution of isoartemisin into the perfusion cannula, however, it was thought preferable to use a Y-cannula and perfuse it separately. Isoartemisin caused an increase in rate of perfusion in all but 2 cases, as shown in Table I. It is believed that in these 2 cases not enough time was allowed for the rate of perfusion to become approximately constant. This is indicated by the sudden decrease in rate on returning to Howell-Ringer solution. The variable increase in rate of perfusion obtained with the 0.008% isoartemisin solution was probably due to the variable extent of the edema.

The vasodilator action of isoartemisin is a property of santonin which has not been lost through oxidation. Bertino[8] has shown that 1:5000 to 1:10,000 solutions of santonin in Ringer's solution have a marked dilator action when tested by the Laewen-Trendelenburg method. He also reports a further dilation on reperfusion of Ringer's solution after santonin. This was not observed after isoartemisin.

Conclusions. 1. Cardiac rate, amplitude of contraction, and output are not significantly affected by perfusion of an 0.008% solu-

5 Sollman and Barlow, *J. Pharmacol.*, 1926, **29**, 233.

6 Laewen, *Arch. Exp. Path. Pharmakol.*, 1904, **51**, 416.

7 Trendelenburg, *Arch. Exp. Path. Pharmakol.*, 1910, **63**, 165.

8 Bertino, *Arch. Farmacol. Sper.*, 1933, **55-56**, 579.

TABLE I.
Rate of Perfusion (drops/min.).

Exp. No.	Ringer Solution	Isoartemisin Solution	Change in Rate	% Change
1 a	29.3	29.2	—0.1	—
b	21.0	22.8	1.8	8.6
2 a	20.8	22.9	2.1	10.1
b	19.4	21.0	1.6	8.2
3 a	15.8	21.2	5.4	34.2
b	11.6	15.8	4.2	36.2
4 a	13.1	14.2	1.1	8.4
b	11.2	16.6	5.4	48.2
c	13.0	17.4	4.4	33.8
5 a	21.4	23.3	1.9	8.9
6 a	30.6	30.2	—0.4	...
b	23.3	27.0	3.7	15.9
c	23.1	29.1	6.0	26.0
7 a	26.4	29.6	3.2	12.1
b	26.0	27.6	1.6	6.2
c	24.5	38.9	14.4	58.8
8 a	18.2	22.8	4.6	25.3
b	16.2	17.4	1.2	7.4
9 a	30.2	35.9	5.7	18.9
b	25.7	33.9	8.2	31.9
c	18.8	23.8	5.0	26.6
10 a	30.2	33.3	3.1	10.3
b	28.0	30.1	2.1	7.5
c	22.8	25.5	2.7	11.8
11 a	17.7	24.7	7.0	39.6
b	16.7	17.7	1.0	6.0

tion of isoartemisin. 2. A slight but significant dilator action on the vessels of the frog leg was observed.

8922 P

Differential Cell Counts of the Pituitary in the Thymus Treated Strain of Rats.

J. H. CLARK, ARTHUR STEINBERG AND L. G. ROWNTREE.

From the Laboratories of the Philadelphia General Hospital, Philadelphia Institute for Medical Research.

In an attempt to ascertain the possible mechanism of the previously reported acceleration in the rate of growth and development of rats produced by injections of thymus extract, differential cell counts of the pituitary, in a series of rats have been made, at intervals between birth and 45 days of age, the period of most rapid growth.

All rats (test and controls) were killed with ether, the pituitaries