solution causes the formation of red brown to black brown coloration which begins near the surface (proximity to oxygen). Homogentisic acid reduces the acidified selenite solution (C) poorly, but only after heating. Homogentisic acid (1 cc. containing 1 mg.) and 2 cc. of acidified selenite solution allowed to stand at room temperature showed faint reduction only at the end of 48 hours. Allantoin and uric acid do not reduce any of the selenite reagents at room temperature or at higher temperatures.

A brick red coloration is imparted in the cold to plant and animal tissues containing ascorbic acid when they are sprinkled with the acidified selenite reagent (C). We have observed this formation of the brick red color with lemon pulp, orange pulp, banana pulp, adrenal gland and liver.

Conclusion. Ascorbic acid reduces in the cold selenious acid, a straight sodium selenite solution, or one alkalinized or acidified. Reducing carbohydrates reduce only the alkalinized solution on heating. Thio compounds, including cysteine and glutathione, also reduce at room temperature the straight sodium selenite solution and the alkalinized solution, but the acidified solution only on the application of heat. A number of aldehydes, ketones, polyphenols, and creatinine also reduce the acidified selenite solution, but only on heating. Ascorbic acid differs from all the organic substances we have thus far tested, since it possesses the unique and specific property of reducing the acidified selenite reagent in the cold. The acidified sodium selenite reagent applied to plant and animal tissue rich in ascorbic acid is easily reduced in the cold with the formation of a brick red color characteristic of free selenium.

8920 P

Suppression of Persisting Corpora Lutea in Hypophysectomized Rats.*

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Although a great deal of information is available concerning the nature of the stimulus which causes a corpus luteum to form, little

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is known of the circumstances which determine its life span. Several observations made by different workers have served to indicate, however, that in the normal animal the involution of the corpus luteum is not a passive phenomenon. Especially noteworthy is the failure of the corpora lutea to regress following hysterectomy in guinea pigs (Loeb[1]) and after hypophysectomy in the adult rat (Smith[2]). Furthermore, the cessation of function and retrogression of the corpora lutea at or near the termination of an oestrous cycle or of a pregnant or pseudopregnant state makes it quite certain that this luteal failure is conditioned by extrinsic factors.

In the present investigation we determined the influence of several hormone preparations on the survival and histological structure of persisting corpora lutea in hypophysectomized rats. The plan of these experiments was to produce heavily luteinized ovaries in young adult rats by injecting crude pituitary extract, remove the hypophysis, allow time for follicular atresia and then replace individually those hormones whose presence in the blood stream was either lacking or not indicated. The corpora lutea were allowed to persist for 15 days before they were subjected to the influence of injected hormones. The injections were continued over 10 days. The crude pituitary extract given prior to the removal of the hypophysis produced ovaries which averaged 100 mg.† and contained numerous corpora lutea. On the 15th and 25th post-operative days the ovaries averaged 63 and 45 mg. respectively. These ovaries always contained numerous persisting corpora lutea and a few small follicles without antra.

The injection of 40 R.U. oestrin daily for 10 days did not significantly alter the weight (av. 42 mg.) or histological structure of the ovaries. The uterus and vagina showed marked oestrous changes.

Another group of 4 animals received 0.5 Rb.U. each daily of progestin. The average ovarian weight (53 mg.) was slightly above the average for the operated controls but the difference was probably not significant since the ovaries were not distinguishable histologically from the controls.

The number and appearance of the persisting corpora lutea was likewise not affected by the follicle stimulating fraction of the pituitary.

A sharp decrease in the size of the ovaries was found after treat-

1 Loeb, Leo, PROC. SOC. EXP. BIOL. AND MED., 1923, **20**, 441.

2 Smith, P. E., *Am. J. Anat.*, 1930, **45**, 205.

† In each case the average ovarian weight represents a group of not less than 5 animals.

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.

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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.