

show a greater increase in potency relative to that exhibited by the spayed female. The apparent reversal of this condition if gonadectomy is delayed for one week may perhaps indicate that during the first week of postnatal life the testis exerts upon the pituitary a definitive influence the effects of which are not eradicated by a 17- to 19-day absence of the gonad. In a recent abstract Pfeiffer<sup>4</sup> reports a sex differentiation in the hypophysis which is not present at birth but which once established cannot readily be altered. Perhaps a critical stage in the period of differentiation is the first week after birth. Histological work and further experiments are planned for a study of this problem.

## 8265 C

### Amount of Progestin in Corpora Lutea of Cows.

GIMBO G. KIMURA. (Introduced by George W. Corner.)

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Practically all work dealing with the corpus luteum hormone, progestin, has been done with material derived from the pig, and most of the determinations of yield which give us information as to the amount of hormone in the raw material have been made on that species. A few investigators however have used corpora lutea of the cow and this source appears to be more convenient in some parts of the world. It may be of interest, therefore, to report the result of a brief study of the amounts of progestin found in cows' corpora lutea.

Three different collections of fresh cows' corpora lutea were made at different times: 2 from the local slaughter houses and one from the Wilson Laboratories of Chicago. In selecting the corpora lutea from the freshly slaughtered cattle, only the active glands of pregnant and non-pregnant cows were used, including the first stage in which the color is pale and stained with blood, and later stages marked by a cream color changing to bright yellow, and finally to reddish orange. Glands showing signs of retrogression, "corpora rubra," identified as being bright red to brown in color, and toughened by the presence of much connective tissue, were all discarded.

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<sup>4</sup> Pfeiffer, C. A., Advance Abstract Sheet, Wist. Inst. Bibl. Ser.; July 15, 1935, 6.

The material was minced and stored in 2 volumes of 95% alcohol, Allen having observed<sup>1</sup> that it may be so stored for at least 10 months with no loss of activity.

Alcoholic extracts were prepared following the procedures of Corner and Allen,<sup>2</sup> and standardized by their method, one rabbit unit being the minimum amount necessary to produce a +++ or ++++ progestational proliferation of the uterine mucosa of a freshly spayed adult female rabbit. The test is described in detail by Corner and Allen<sup>2</sup> and illustrated by Allen.<sup>1</sup> The length of time that the extract was kept before injection was the same for all preparations, and the beginning of the injection period was so timed that it began the day following the completion of the preparation of the extract.

The yield of the oily extract (crude progestin) averaged 40 cc. per kilogram of corpora lutea for the 3 preparations. Considering 1 cc. of crude extract to be equivalent to 1 gm., this yield represents about 40 gm. per kilo of fresh tissue. Robson and Illingworth<sup>3</sup> reported having obtained about 30 cc. per kilo of corpora lutea, but have recently doubled this yield (personal communication).

The 2 extracts prepared from corpora lutea obtained from the local slaughter houses were administered to castrate adult female rabbits under the specified test conditions. An amount of extract equivalent to 70 gm. of fresh corpora lutea gave full proliferation (+++). Allen<sup>1</sup> found that generally one-half of the minimal dose necessary to produce +++ or ++++ proliferation will give a + or ++ reaction, and this was observed in the present study also, animals receiving 35 gm. equivalents of fresh tissue showing ++ reaction. Half of this dose, in turn, gave a very faint proliferation or no proliferation at all. From this it is seen that one rabbit unit was obtained from 70 gm. of fresh tissue and the yield of the active substance from extracts prepared in this way averaged 14 rabbit units per kilogram of fresh tissue.

When, however, an amount of the extract equivalent to 100 gm. of corpora lutea obtained from the Wilson Laboratories was injected ++ proliferation was observed. Half of this dosage gave a very faint reaction. These 2 results show a rather pronounced difference from those results given by preparations made from corpora lutea obtained from local sources, which were approximately twice as potent. This phenomenon has been observed repeatedly by Corner

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<sup>1</sup> Allen, W. M., *Am. J. Physiol.*, 1930, **92**, 174.

<sup>2</sup> Corner, G. W., and Allen, W. M., *Am. J. Physiol.*, 1929, **88**, 326.

<sup>3</sup> Robson, J. M., and Illingworth, R. E., *Quart. J. Exp. Physiol.*, 1931, **21**, 93.

and Allen in their extensive work with pig material obtained from commercial laboratories and appears unexplainable in any way other than by the selection of material.

In this laboratory the general run of corpus luteum material obtained locally from sows gives a fairly constant yield of 30 to 50 rabbit units per kilogram of fresh tissue. The above results show that in the cow the corpora lutea contain much less progesterin than do the pig's corpora lutea. As the same procedures were followed and the same laboratory was utilized, it seems probable that the lesser potency of cows' corpora lutea represents a species difference. The only other exact information on this point is that published by Robson and Illingworth,<sup>3</sup> whose results might be interpreted as indicating a higher potency of the cows' corpora lutea than that here reported; but from a very kind personal communication of Dr. Robson it appears that in his laboratory the yield measured by a test similar to ours is about 8 to 10 rabbit units per kilogram of fresh tissue, a figure close to our yield.

I wish to express my appreciation of the many helpful suggestions given by Dr. George W. Corner and Dr. Willard M. Allen.

## 8266 C

### Effect of Sodium Amytal on Leucocytes of the Albino Rat.

DOUGLAS WARNER. (Introduced by F. G. Gilchrist.)

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Male rats of Wistar Experimental Colony strain were used in a study of the effect of sodium amytal upon the white blood cell counts. Preceding and during the experiment, these animals were under standardized and controlled conditions as previously described.<sup>1</sup> The procedure was as follows: At 11, 12, and 13 (1 P.M.) o'clock wet counts for the total number of white cells per cc. of blood were made. At the same time smears were prepared for differential counts. Immediately after the 11 and 12 o'clock counts, saline solution was injected as a control. After the 13 o'clock count an aqueous solution of sodium amytal, 6 mg. per 100 gm. of body weight, was injected. Wet counts were made and smears prepared every 2 hours for the next 16 hours. Sixteen male rats were used in the experimental groups. The normal curve of 53 animals deter-

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<sup>1</sup> To be published, *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **33**.