could be found. The results of this series of experiments, consisting of 12 rabbits, showed some retardation in the spread of tuberculosis from a site of subcutaneous inoculation upon repeated intravenous injections of 0.25% ferric chloride. Further studies on this subject are being continued.

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Reciprocal Relationship Between Ovaries and Anterior Hypophysis as Factor in Control of Lactation.*

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Experimental evidence has been presented (Nelson,[1] Nelson and Smelser[2]) which has been interpreted as indicating the existence of a reciprocal relationship between the ovaries and the anterior hypophysis in the control of mammary gland development and lactation. This hypothesis, which is related to that of Moore and Price[3] regarding the control of sex rhythms, held that while the female sex hormones are responsible for the mammary gland development of pregnancy they also inhibit the secretion of the anterior lobe hormone responsible for lactation. With removal of the inhibition at parturition the hormone is secreted and lactation occurs. It is evident that this conception correlates at least most of the known facts relating to normal and induced lactation. Recently, Smith and Smith,[4] and Selye, Collip, and Thomson[5] have presented evidence which supports this hypothesis.

Supporting the earlier experiments with non-pregnant female and male guinea pigs are the following observations from a series of studies on pregnant animals. It will be seen that they offer important evidence in support of the reciprocal relationship concept.

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1 Nelson, W. O., *Anat. Rec.*, 1932, **54**, 51.

2 Nelson, W. O., and Smelser, G. K., *Am. J. Physiol.*, 1933, **103**, 374.

3 Moore, C. R., and Price, D., *Am. J. Anat.*, 1932, **50**, 13.

4 Smith, G. V. S., and Smith, O. W., *Am. J. Physiol.*, 1933, **103**, 356.

5 Selye, H., Collip, J. B., and Thomson, D. L., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 588.

1. The injection, into pregnant guinea pigs, of a potent anterior lobe extract‡ terminated pregnancy and induced lactation (8 cases).

2. Extirpation of the ovaries did not invariably lead to abortion (7 out of 21 cases went to term). Lactation occurred only after foetal expulsion whether abortive or at term.

3. Surgical removal of the the entire pregnant uterus did not cause lactation unless the anterior lobe extract was administered (11 cases).

4. Surgical removal of the uterus and the ovaries did induce lactation (5 cases).

5. Surgical removal of the ovaries and the fertile uterine horn only, in cases of unilateral pregnancy, resulted in lactation (4 cases).

6. Lactation did not occur when the ovaries and embryos were removed, leaving the placentae intact, during the period of placental retention, but did occur following expulsion of the placentae (4 cases). Autopsies of animals failing to lactate following natural, although abnormal, deliveries has revealed the retention of placental tissue. Lactation may be induced in such animals by administration of anterior lobe extracts.

7. Lactation was inhibited in normal parturient females by theelin administration (5 cases). However, if an anterior lobe extract was administered simultaneously with the theelin, lactation occurred (3 cases).

These experiments further confirm the original contentions and are especially pertinent as they deal with the pregnant animal. They indicate that, in the guinea pig at least, a dual control is exercised over the hypophysis during pregnancy by the ovaries and the placenta. The suppressing factor of the placenta is believed to be oestrin since, if abortion does not occur, the nipples continue to develop following ovariectomy. The nature of the ovarian hormone active in these animals is less clearly defined since the evidence at hand indicates that mammary development ceases when the pregnant uterus is removed. However, certain considerations indicate that the hormone of the corpus luteum, too, may be involved in the suppression of the hypophysis.

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