

The discrepancy between methemoglobin reduced (increase of O₂ capacity) and lactate oxidized means either that the nitrite-"methemoglobin" is not methemoglobin (Hartridge⁴) and has much higher capacity as an oxidant, or that other oxidants are involved beside methemoglobin. The question is being investigated.

Methemoglobin in simple buffer solution (in absence of cells) fails to attack lactic acid, and methemoglobin dissolved in buffer solution, in which normal hemoglobin-containing, glycolytically active cells are suspended, likewise fails to oxidize lactate. We may infer, therefore, that methemoglobin is effective in causing this oxidation only when present within the cell where lactate activation occurs.

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Ovarian and Anterior Pituitary Hormones from the Pregnant Monkey.

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The hormones referred to are (1) the ovarian hormone (theelin, oestrin, folliculin) and (2) the active principle of the anterior lobe of the hypophysis which stimulates development of ovarian follicles and culminates in ovulation. The simplest and most decisive test for the former is the full oestrous growth reaction of the epithelium of the genital tract of the ovariectomized adult rat determined by the characteristic changes in the cell content of vaginal smear preparations. One of the best tests for the second active substance is the reaction of the normal immature rat which results in the attainment of puberty including the first ovulation. This is accomplished by stimulation of rapid growth in the ovarian follicles which in turn produce the follicular hormone which causes rapid growth in the genital organs.

It has been demonstrated repeatedly that the human placenta contains large amounts of folliculin, the total increasing with the growth of the placenta as pregnancy progresses. Positive tests have been obtained from fetal membranes of the cow, sheep and horse but negative tests so far from zonular placentas of the cat and dog. The urine of pregnant women and cows furnishes an abundant

⁴ Hartridge, *J. Physiol.*, 1920-21, **54**, 253.

source of this hormone. The gonad stimulating principle of the anterior pituitary is also present in human urine during pregnancy.

We have tested 2 full term placentas of the monkey, *Macacus rhesus*, for ovarian hormone and the urine of one pregnant monkey for both this and the anterior pituitary hormone.

As shown by Hartman, the gestation period in monkeys is approximately 6 months long. The placentas used for these tests were obtained by Dr. Hartman from 2 of the monkeys photographed by him during parturition. They were preserved in alcohol and sent us for extraction. The residue from the alcoholic extract was dissolved in Mazola oil and tested in ovariectomized adult rats. The first tests of these extracts in moderate doses were negative. Later, with increased doses, positive tests were obtained. The number of these tests was not great enough to justify an exact quantitative statement. It was sufficient, however, to demonstrate the presence of small amounts of oestrin in monkey placenta.

One female in our colony mated between the 9th and 12th of December, 1929, became pregnant. Pregnancy continued until the 19th of April, 1930, at which time a normal fetus was aborted. Overnight samples of urine were collected from this monkey at intervals beginning in January and continuing until the time of abortion.

Tests for the gonad stimulating anterior lobe hormone were made by injecting urine directly into normal immature rats aged 24 to 29 days at the beginning of injections. Twelve tests were obtained of samples collected between January 24th and April 16th. Total dosages ranged from 3 to 8 cc. of urine over periods of several days. The ovaries were examined immediately after removal, then sectioned and studied microscopically. In no case was a positive result obtained from urine of this monkey although smaller amounts of urine from pregnant women returned positive reactions in control experiments. In the urine from this animal, therefore, there was very little if any of this anterior lobe substance.

Parts of the same samples of urine were extracted with chloroform, the residue dissolved in Mazola oil and tested for folliculin. In moderate dosages these extracts proved negative, but when the dosages were increased, positive results were obtained. It was concluded that this hormone is present in the urine from the pregnant monkey but in less concentration than in the urine from pregnant women.