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"A Method for Assay of Ovarian Hormone in Blood and Urine and Relation of Assay to Menstrual Cycle."

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A communication with the above title, by F. F. Wildebush and J. F. McClendon[1] describes a technic for extracting the female sex hormone ("ovarian hormone") from the blood and urine by means of which they obtained a minimum yield of 24 M.U. and a maximum yield of 126 M.U. for 20 cc. from the vein blood of normal women. Their method varies from the technic published and employed by us since 1925, mainly in that they add N sodium hydrate to the oxalated blood before extraction with ether.

In our early work we employed oxalated blood, but as routine have long since used anhydrous sodium sulphate to dry the blood and performed a dry extraction. Our work in 1925 had convinced us that the dry is preferable to the wet extraction.

In over 550 women on whom we have performed more than 1000 tests, our readings have never shown a greater yield than *1 M.U. in 40 cc. of vein blood of normal women* except during pregnancy, and then not above 2 M.U. have been found. The lowest readings of Wildebush and McClendon are therefore *50 times as great as ours; their highest 252 times as great.* On how many women their figures are based cannot be gathered from their report.

We have attempted to elucidate the cause for this extreme and startling divergence by repeating their work, duplicating their technic with scrupulous exactitude. The amount of the extract given to castrated mice varied when based upon Wildebush and McClendon's minimum maximum results, from a possible 0.6 to 6 M.U. as a minimum, up to 3 to 31.5 M.U. as a maximum.

Our results are based upon bloods of 4 patients, the extracts injected into 16 mice. Not a single positive reaction was obtained.

We have not yet had the opportunity to repeat their work on urines. We make no attempt to explain the fact that our results with the Wildebush and McClendon technic are uniformly negative. We desire, however, to call attention to the fact that unless the oxalation and alkalinization of blood serum *releases female sex hormone contained in an inactive state in the blood serum,* the injection of

[1] Wildebush, F. F., and McClendon, J. F., PROC. SOC. EXP. BIOL. AND MED., 1929, xxvi, 785.

0.1 to 0.5 cc. of untreated blood serum in castrated mice (granted that Wildebush and McClendon's observations are correct) should give a positive reaction. Yet the results of many investigators have uniformly shown that even 10 to 15 cc. of untreated blood serum of normal non-pregnant women, produce no reaction.

TABLE I.

Days of Cycle	Amounts of extract used in each case equivalent to	Mouse units to be expected according to Wildebush and Mc Clendon*	Mouse units found
27th day after menses	1/2 of 10 cc. blood	30-31.5	0
26th day after menses	1/5 of 10 cc. blood	12-12.6	0
24th day after menses	1/10 of 10 cc. blood	6- 6.3	0
23rd day after menses	1/20 of 10 cc. blood	3- 3.1	0

* At this period of the cycle.

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The Development of Movement of the Hind Leg of Amblystoma.

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The earliest movements of the hind leg are adduction and abduction, and they occur only with action of the trunk. At about the same time that this type of movement appears, or probably a little later, the hind leg elevates when the animal is rotated dorsally on its longitudinal axis on the side of the reacting limb. This movement of the hind leg is co-ordinated with elevation of the fore limb. This integrated action of fore and hind limbs with action of the trunk is a typical postural reaction and it occurs before a local reflex of the hind leg can be excited. Before local exteroceptive reflexes of the hind leg appear there occur also strong simultaneous abduction of both hind legs in coordination with elevation of the head and fore part of the trunk; the typical walking posture, *i. e.*, flexure of the trunk with the adduction of the fore legs and abduction of the hind leg on the concave side while on the opposite side the fore leg is abducted and the hind leg adducted; and, at least in many cases, typical walking.

Tactile stimulation of the leg excites action of the animal as a whole until just before local reflexes of the leg appear, when such stimulation inhibits all body movement. Local reflexes of the hind