

matocyte is the important cell in the cellular pathology of testicular and scrotal lesions of acute experimental syphilis.

The observations on other aspects of the cellular reaction in experimental syphilis will be presented in future communications.

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Amytal on Smooth Muscle.

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While using sodium amytal (sodium iso-amyl-ethyl barbiturate) as a routine laboratory anesthetic, it was observed that some of the dogs seemed to show certain signs of increased intestinal motility. Gruber¹ found the tone of isolated intestine, uterus and ureter diminished by the barbituric acid derivatives (uterus by 1:10,000 or stronger amytal solution). Drabkin *et al.*² reported maintenance of the rhythmic contractions and of response to the oxytocic principle of pituitary by the isolated uterus following large doses of amytal (1:1,000).³ Swanson⁴ obtained only a depression of the tone of all smooth muscle structures (by 1:25,000 sodium amytal or stronger).

As these observations are somewhat in conflict, a series of experiments was done with smooth muscle tissues from various animals. The animals were killed by exsanguination and the desired parts removed at once and placed in iced Tyrode's or Locke's solution, where they were kept 2-4 hours. (In one or two instances where ether had been used a longer cold waiting period was found to improve the behavior.) The physiological bath chamber contained 200 cc. Precautions were observed as to constancy of temperature, oxygenation and pH.

The first experiments showed only depression by sodium amytal. On using smaller and smaller doses of the drug, however, a consistent "reversal effect" was obtained with every specimen that offered a uniform and dependable activity. Concentrations of 1:100,000-1:40,000 caused a prompt and vigorous increase in tone,

¹ Gruber, Charles M., *J. Pharm. and Exp. Ther.*, 1927, **30**, 149.

² Drabkin, D. L., Ravdin, I. S., and Hirst, J. C., *Am. J. Med. Sci.*, 1929, **178**, 379.

^{3, 4} Personal communications.

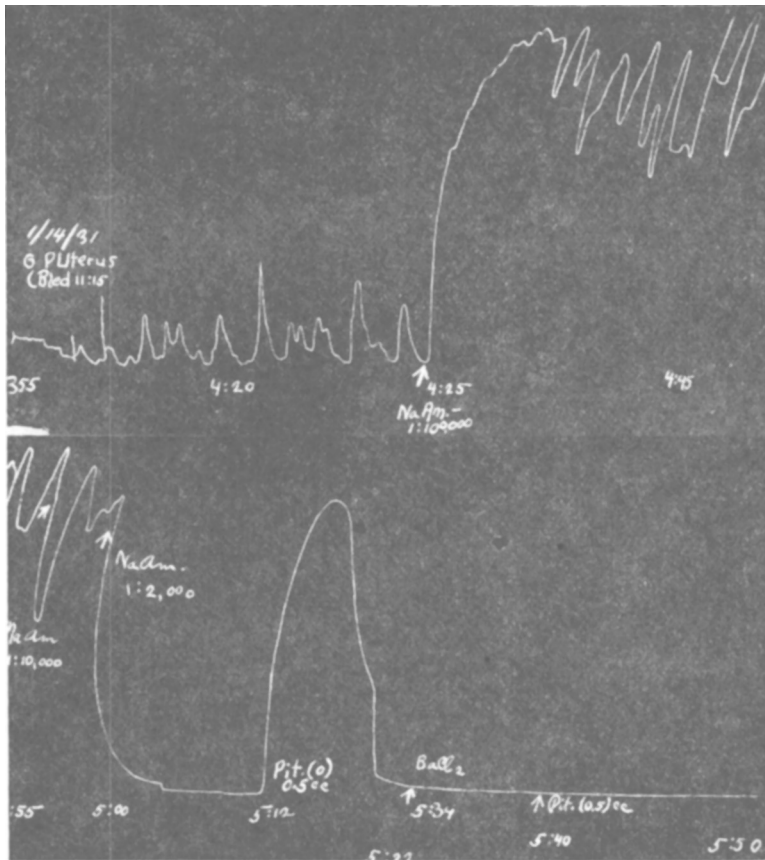


FIG. 1. (Lower tracing is a continuation of the upper.)

The effect of various concentrations of sodium amytal on one horn of the virgin guinea pig uterus in oxygenated Locke's solution. The uterus had previously been in iced solution 4 hours and 40 minutes. Sodium amytal, 1:100,000, induced an increased tonus that was maintained for 30 minutes; this was slightly alleviated by 1:10,000, and abolished by 1:2,000, as was all rhythmic activity. After this treatment, 0.5 cc. pituitrin O caused one contraction, immediately followed by relaxation to a base line which was not altered by a massive dose of barium chloride or by another dose of pituitrin of the same size.

too often sending the writing point above the paper, although the lever magnification was only 3:1 and the segment a short one. This high tone was generally accompanied by an increase in the height of individual contractions. This rise was maintained for at least 30 minutes unless a change was made in the content of the bath. A large dose of sodium amytal, introduced during this period, was followed by an immediate relaxation to control level or lower and, if large enough, an abolition of individual contractions. Figure 1 is a typical tracing. Primary concentrations of 1:25,000-1:1,000

markedly lowered the tone level and, with the stronger ones, completely abolished rhythmic activity. A high tone previously induced by pituitrin was immediately brought back to control level or lower by these concentrations. Following a primary dose of sodium amytal in this range the tissue responded to pituitrin either in a curtailed fashion or not at all, and usually was unable to respond even to barium.

While the quantitative reaction varied considerably, and those of the uterus were the most spectacular, the directional responses were consistent. Specimens used included guinea pig uterus (virgin and pregnant), rabbit duodenum, rabbit uterus (non-pregnant), kangaroo* uterus and intestine, and portions of the digestive tract of the barn owl.

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Delayed Differential Counting of the White Blood Cells by a Modified Supravital Technique.

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It is a common experience in doing differential white blood cell counts by the supravital method^{1, 2} that the cells cannot be identified after about 2 hours in the hot-box, since by this time nearly all the cells have taken up large amounts of the dye.

It has been found that by a relatively slight modification of the usual technique, differential counts may be made with great facility as long as 12 to 24 hours after taking the blood. This has been accomplished (1) by reducing the concentration of the dye used, (2) by placing the blood smears in the refrigerator until ready for counting, and (3) by eliminating the hot-box. Through the use of this procedure, all cells have been found to be actively motile and to retain their morphological viable characteristics; a 24 hour preparation which has been kept in the icebox appears to be entirely similar to a fresh smear and cannot be distinguished from it.

Thirty drops of a saturated solution of neutral red iodide No. 2

* This was an old female which had been in paralytic shock for 3 days. She and some of the other animals were available by courtesy of the Milwaukee Zoo.

¹ Simpson, M. E., *Univ. of Calif. Pub. in Anat.*, 1921, **1**, 1.

² Sabin, F. R., *Johns Hopkins Hosp. Bull.*, 1923, **34**, 277.