Summary and Conclusion: Thirty-two experiments with nearly 12,000 obelia, half of which were exposed to dl-methionine in varied concentration showed this sulfur containing amino acid acts as a growth stimulant to this lowly animal as it does to higher. The effect was differentially produced on growth in which cell increase in number was dominant. The results taken with correlated data are consistent with the assumption that methionine may be converted to cystine in the living organism.

8550 C

The Action of Ergometrinine.

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Ergometrinine is one of the newer alkaloids of ergot isolated by Smith and Timmis.[1] It decomposes at about 195° and has an optical rotation of $[\alpha]^{20}_{5461}$ + 598°. Its empirical formula is the same as that for ergometrine, that is, $C_{19}H_{23}O_2N_3$. Raymond-Hamet[2] reported that in the dog ergometrinine caused a rise of blood pressure and vasoconstriction, and that with a dose of 24.5 mg. per kg., it abolished the vasoconstricting action of adrenalin. He concluded that ergometrinine was weaker than ergometrine.

With the aid of Mr. Howard B. Fonda, Experimental Research Laboratories, Burroughs Wellcome and Company, Tuckahoe, we were able to secure 50 mg. of ergometrinine nitrate. The material is easily soluble in water and exhibits a blue fluorescence in aqueous solution. Unlike ergotoxine or ergotamine, ergometrinine does not inhibit the adrenalin response on the isolated rabbit's uterus in a concentration as strong as 1:27,777 (the Broom-Clark test[3]), but on the contrary, it exerts a weak stimulating action itself. When assayed by the method described previously,[4] ergometrinine HNO_3 was shown to be 1/100 as active as ergotocin maleate in 6 observations (Fig. 1A). Since the results obtained in our laboratory indi-

[1] Smith, S., and Timmis, G. M., *Nature*, 1935, **136**, 259.

[2] Raymond-Hamet, *Compt. rend. Soc. de biol.*, 1935, **120**, 1208.

[3] Broom, W. A., and Clark, A. J., *J. Pharm. and Exp. Therap.*, 1923, **22**, 59.

[4] Swanson, E. E., Hargreaves, C. C., and Chen, K. K., *J. Am. Pharm. A.*, 1935, **24**, 835.

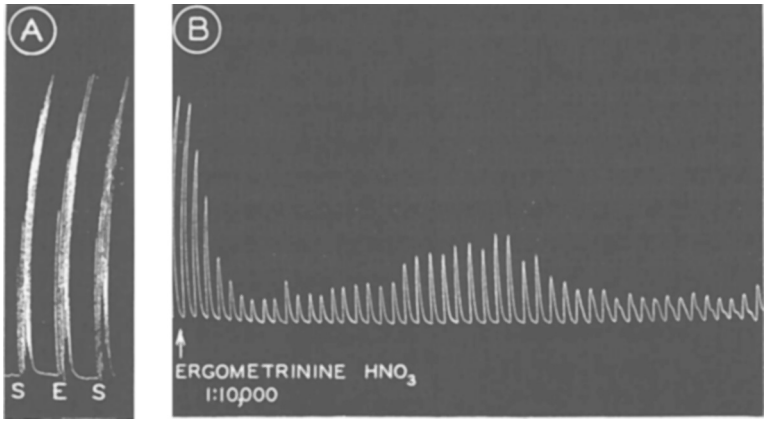

FIG. 1.

A. Assay of Ergometrinine on Isolated Rabbit's Uterus. At S 0.03 mg. of ergotocin maleate was added. At E 3 mg. of ergometrinine HNO_3 were applied. There was a "washout" after each response.

B. Action of Ergometrinine on Isolated Rabbit's Intestines. Note the inhibition after the introduction of ergometrinine HNO_3.

cate that ergotocin has identically the same pharmacological effect,[5] the ratio of activity between ergometrinine and ergometrine must be also 1:100. The new base was found to possess a similarly low potency on the cock's comb—only about 0.7% of the activity of ergotocin maleate according to the U.S.P. procedures,[6] a total of 19 birds being used. Colorimetrically,[7,8] however, ergometrinine HNO_3 proved to have a value of 106% as compared with ergotocin maleate. It relaxed isolated rabbit's intestines (Fig. 1B). By local application of a one per cent solution, it did not dilate the rabbit's pupil. An intravenous injection of ergometrinine HNO_3, 4 mg. per kg., in an etherized cat was followed by a prolonged fall of blood pressure with marked changes of the electrocardiogram. As shown in Fig. 2, there occurred bundle branch block and nodal tachycardia during the lowering of blood pressure, and a typical nodal rhythm as soon as the pressure rose to the initial level.

Summary. Ergometrinine has approximately 1/100 the oxytocic activity of ergotocin (or ergometrine). It inhibits isolated rabbit's intestines. In a cat, a dose of 4 mg. per kg. caused a fall of blood pressure accompanied by bundle branch block, nodal tachycardia, and finally nodal rhythm.

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6 Pharmacopœia of the United States, 11th rev., 1936, 148.

7 Van Urk, H. W., *Pharm. Weekblad*, 1929, **66**, 473.

8 Smith, M. I., *Pub. Health Rep.*, 1930, **45**, 1466.

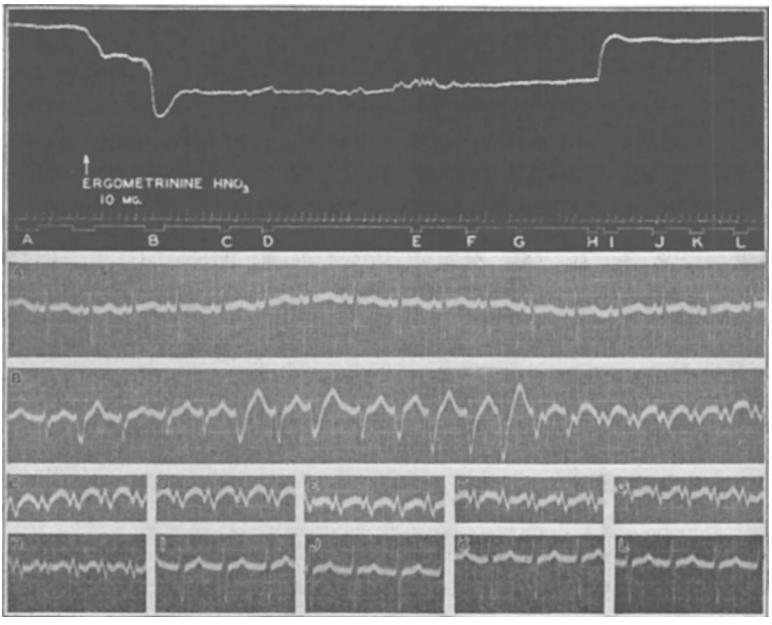

FIG. 2.

Action of Ergometrinine on Blood Pressure and Electrocardiogram. Cat No. 1372, female, weighing 2.5 kg., was anesthetized with ether. The letters marked on the electrocardiograms correspond to those on the kymographic tracing which shows from above down the carotid pressure, time, and the base line.

We are indebted to Messrs. C. Earl Powell, Robert C. Anderson, and Asa N. Stevens for their valuable assistance in this work.

8551 C

Possible Bipolar Nuclear Distribution in Bacteria.

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Variations in the staining intensity of portions of the bacterial cell so that the bacterium appeared to contain granules situated at the poles were noted while employing a Gray's flagella stain on a glucose broth culture of *Eberthella typhi*. Subsequent investigation demonstrated that with improved technic the granules could be shown in a variety of bacteria irrespective of the sugar em-