those produced by tyramin. But tyramin is more constant in its action and it rarely causes the muscular tremor and apprehension that so frequently follows a large epinephrin injection.

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Absence of urea-splitting ferments in the animal tissues.

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In 1912 Löb and Gutmann[1] published some data from which they concluded that a ferment capable of splitting NH_3 from urea existed in the pig's ovaries. Taniguchi[2] in a similar investigation which appeared last year confirmed this with somewhat more detailed data on determinations done with extracts from cow's ovaries. Both investigators used the Kruger and Reich method of ammonia estimation and their technique of extraction involved several hours of incubation.

In the present study corpora lutea were separated from fresh cow's ovaries, ground with twice its volume of 0.9 per cent. NaCl solution and filtered after standing one hour at room temperature. A similar extract was made from the rest of the ovaries. To 1 c.c. samples of a 2 per cent. urea solution were added 5, 10 and 15 c.c. of the filtrate and the mixture incubated for one hour at 37° C. Samples of urea solution and of the filtrate alone were similarly treated.

Ammonia estimations on all the samples were done by the aëration-titration method, using Barnett's recently described technique.[3] No more ammonia was found after incubation in the samples of extract and urea mixture than the combined ammonia content of the urea and of the extract samples.

In the following table figures for the corpora lutea extract are given, extracts from the rest of the ovaries gave similar results.

[1] Löb, W., and Gutmann, S., *Biochem. Z.*, 1912, XLI, 445.

[2] Taniguchi, Y., *Acta scholea med. univ. imp.*, Kioto, 1916, I, 3, 299.

[3] Barnett, G. D., *J. Bio. Chem.*, 1917, XXIX, 459.

2 per cent. Urea Sol., Cc.	C. L. Extract, Cc.	NH_3 in the Sample, Mgm.
1	—	0.051
—	5	0.076
1	5	0.119
—	10	0.136
1	10	0.170
—	15	0.143
1	15	0.196

Ammonium carbonate in passing through the liver is converted into urea. Urea on the other hand is converted into ammonium carbonate by an enzyme found in certain bacteria, fungi and a number of higher plants. In 1913 Fosse[1] published some data showing the occurrence of urea in fungi and higher plants, thus pointing to the possibility that the tissues of certain plants may be the site of both the formation of urea and its conversion into ammonium carbonate.

But all attempts to demonstrate the reversibility of the process whereby urea is formed in the animal body have so far failed. Earlier work on this subject reveals a number of conflicting observations. Perfusion experiments by Wakeman and Dakin[2] and by Jansen[3] on the liver under conditions which might be expected to favor a reversion of the reaction failed to show any conversion of urea into ammonia. Recently Barnett and Addis[4] found a marked increase of blood ammonia after intravenous injection of large doses of urea. Although this ammonia was shown to be at least in part due to bacterial decomposition in the intestine their experiments suggested the possible derivation of ammonia from urea in the body. But later experiments not yet published fairly establish the fact that the rapid rise of blood ammonia after the intravenous injection of large doses of urea is due solely to the bacterial action in the bowel.

The presence of urease in the ovaries—if proved—would have been strong evidence in favor of the theory of the reversibility of the ammonia-urea reaction in the body. The results of the experiments here reported fail to confirm the findings of the two earlier investigators.

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[1] Fosse, R., *C. R. Academ. Sciences*, 1913, CLVI, 568.

[2] Wakeman, A. J., and Dakin, H. D., *J. Bio. Chem.*, 1911, IX, 327.

[3] Jansen, B. C. P., *Arch. Neerland*, 1915, II, 594.

[4] Barnett, G. D., and Addis, T., *J. Bio. Chem.*, 1917, XXX, 41.