tions. Exp. 72 showed that sesame oil *TA*.43 lost markedly in activating power on removal of the sesamin. The mortality with the desesaminized oil was, however, higher than expected of an oil with no activating power. This result was confirmed in expt. 74, in which 0·05 per cent pyrethrins was included for comparison. Exp. 73 demonstrated clearly the activating effect of sesamin.

Five per cent w./v. of sesame oil *TA*.4 used alone in kerosene has been shown to be insufficiently toxic to flies to account for the increase in kill by pyrethrins observed when *TA*.4 was incorporated in the spray.

From chamber tests on house-flies by the method in use at this laboratory, activation by sesame oil of the toxicity of pyrethrins appears, therefore, to be dependent mainly upon the sesamin content of the oil, and increase in kill is accompanied by a small increase in the rate of knock-down. Medicinal paraffin and sesame oil *TA*.3 reduced both the rate of knock-down and the kill by pyrethrins. With Musca, oleic acid and lubricating oil when mixed with pyrethrins caused little or no increase in kill, in contrast to the data recorded by David and Bracey in their tests on Aedes.

The inactive sample of sesame oil *TA*.3 gave a positive colour reaction for sesamin, and optical measurements indicated a sesamin content of about 0·3 per cent w./v. as against the normal 1 per cent (approx.). We now have, therefore, an oil containing a little sesamin, which reduces slightly the toxicity of pyrethrins to the house-fly, and two samples of desesaminized oils, which give a negative colour reaction for sesamin yet cause a slight increase in the toxicity of pyrethrins. There is no reason to doubt that the constituent of sesame oil chiefly responsible for activation of pyrethrins is sesamin; but it seems that there may also be present a complex of secondary factors which, according to its composition, may increase or decrease the effect of the pyrethrins and/or sesamin in a fly spray.

We wish to acknowledge the co-operation of Mr. B. A. Ellis, Government Laboratory, in this investigation, especially for the provision of samples of sesamin and desesaminized oils.

This note, which is based on work being carried out for the Pest Infestation Research Committee, is published by permission of the Department of Scientific and Industrial Research.

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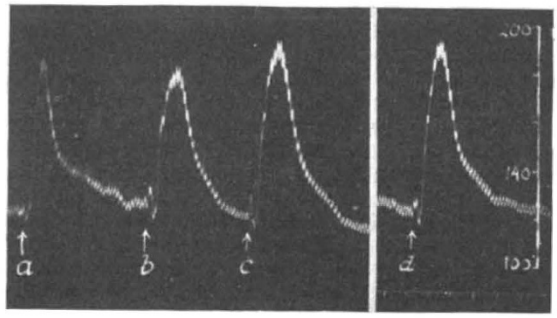
[1] *Nature*, **153**, 594 (1944).

Identification of a Urine Base with Nicotine-like Action

IN a previous communication, the isolation from urine of a volatile base with nicotine-like action has been announced[1]. The active substance was obtained from normal fresh cow's urine by means of continuous fluid extraction with ether, and isolated as picrate. On the assumption that the active base formed picrate and hydrochloride with one equivalent of acid, the molecular weight was estimated to be 80–90. The active compound showed the reactions of a secondary amine. Microanalysis of the crystalline picrate yielded results which would correspond to the formula $C_6H_{11}N$ for the base.



BLOOD-PRESSURE, CAT, CHLORALOSE. HALF AN HOUR PREVIOUSLY THE ANIMAL HAD RECEIVED 0·1 MGM. ERGOTAMINE TARTRATE PER KGM. *i.v.*

(*a*) 0·05 mgm. nicotine; (*b*) 1 mgm. piperidine hydrochloride; (*c*) 1·5 mgm. of same; (*d*) 1·5 mgm. of urine base hydrochloride.

The nicotine-like effect, which in strength was about $\frac{1}{15} - \frac{1}{20}$ of that of nicotine, and the chemical data obtained, made it probable that the substance was closely related to piperidine. The picrate and hydrochloride of piperidine were accordingly prepared and their action compared with those of the picrate and the hydrochloride of the urine base on the blood-pressure of the cat before and after atropine, on the rabbit's isolated intestine, on the isolated uterus of the cat and on the unanæsthetized frog. In all instances the biological actions of the two sets of substances were, weight for weight, identical. The illustration shows the effect on the blood-pressure of the cat.

The picrate of the urine base melted at 142°, the piperidine picrate at 145° and a mixture of both at 142–143°.

The evidence thus obtained, chemical and physiological, seems to justify the conclusion that the active base is piperidine.

As to the origin of piperidine in urine (up to 10 mgm. per litre) no statements can be made at present. Tentatively, its formation from lysine and pentamethylene diamine should be considered.

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April 8.

[1] Euler, U. S. v., *Acta Physiol. Scand.*, in the Press.
[2] Moore, B., and Row, R., *J. Physiol.*, **22**, 273 (1897–98).

Effect of Unsaturated Fatty Acids upon the Growth of *Lactobacillus helveticus* and other Gram-positive Bacteria

THE findings of Bauernfeind *et al.*[1] and of Strong and Carpenter[2] suggest that the accuracy of microbiological assays for riboflavin, with *Lactobacillus helveticus* as the test organism, may be seriously affected by the presence of fatty acids in the extracts under investigation. We have studied the conditions under which such interference may occur using a medium freed from lipids by chloroform extraction. Our results will be reported in detail elsewhere[3].

We find that the growth of an American strain of