LETTER TO THE EDITOR

Alkaloids of *Duboisia leichhardtii*

SIR,—I have read with interest the paper[1] by Rosenblum and Taylor. It seems very likely that their "Base B" is in fact similar to the "Base D" that I described[2]. This was isolated in 0·06 per cent. yield from a specimen of the drug containing 4·1 per cent. of total alkaloids, but differed from "Base B" in that it was optically inactive. Hence the authors' statement that I thought *d*-α-methylbutyryltropëine to be present is unfounded. I was able to prove that "Base D" consisted of tropine esters, but having less than 0·5 g. of the hydrobromide available, I did not succeed in identifying the acid produced on hydrolysis. It was evidently a mixture, and appeared to contain a valeric acid. By analogy with my earlier work on poroidine and *iso*poroidine[3] I suggested that *iso*valeric acid might be present, a suggestion that now seems to have been incorrect.

It is satisfactory that this problem now appears to have been solved, and I share the authors' interest in the isolation of a butyric ester alkaloid from a *Duboisia*, species of which have previously only yielded minor alkaloids that were esters of pentoic or pentenoic acids.

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REFERENCES

1. Rosenblum and Taylor, *J. Pharm. Pharmacol.*, 1954, **6**, 410.
2. Mitchell, *J. chem. Soc.*, 1944, 480.
3. Barger, Martin and Mitchell, *ibid.*, 1938, 1685.

(ABSTRACTS *continued from p.* 575.)

hexokinase. Hexokinase is an -SH enzyme and mustard gas attacks both the oxidised and the reduced forms. The mustard compounds can also produce other cellular changes. They can cause heritable mutations, can affect chromosome structure and can inhibit mitosis. The permeability of the local skin capillaries is altered within a few minutes, resulting in a loss of fluid and protein from the plasma so that local œdema occurs, the plasma volume and plasma protein content may fall and hæmoconcentration is produced. In addition serious damage is done to the hæmopoietic tissues, and these tissue changes are reflected by alterations in the cellular content of the blood. The whole metabolism of the bone marrow is depressed. Lewisite can also inhibit hexokinase, but there are differences in the gross pathology and the metabolic disturbances produced by lewisite and the mustard compounds, attributable to the presence of a tervalent arsenic atom in the lewisite molecule. Lewisite has a strong inhibitory action on the pyruvate oxidase system by combining with the SH groups in protein which are essential for the activity of this enzyme system. Dimercaprol, by forming stable ring compounds with lewisite, renders it relatively non-toxic and prevents it from inhibiting the pyruvate oxidase enzyme system. The lung irritants, such as phosgene, are, like the vesicants, able to produce profound shifts in body water merely by acting on the local exposed capillary vessels. The main toxic action of phosgene, however, is on the lung; the underlying mechanism of the effect on the lung capillaries is not known, but there is evidence that it may be enzymic in nature. The organophosphorus compounds produce their effects by inhibiting cholinesterase and so allowing acetylcholine to accumulate peripherally at cholinergic nerve-endings and possibly centrally in the brain and spinal cord, the body thus poisoning itself by its own production of acetylcholine.