Osmium has less tendency to produce an artificial effect, and if it is used sparingly it can give a life-like appearance to lipochondria[3]. If the latter are crowded together and too much osmium is used, it artificially joins them. Dr. Dalton's Fig. 2*B* shows them quite well; but the osmium has been deposited in such a way as to join nearly all the lipochondria into groups.

When an object is sufficiently large to be seen with the light-microscope, there is no purpose in trying to determine its form by use of the electron-microscope. On the contrary, it is necessarily more distorted than it would have been if it had passed through the ordinary routine of microtomy, because it must be perfectly dry. The electron-microscope has value only in throwing light on sub-microscopic structure:

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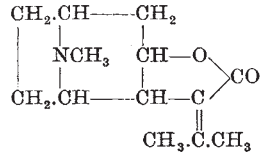
An Alkaloid of *Dioscorea hispida*, Dennst

The alkaloid dioscorine, $C_{13}H_{19}O_2N$, was first isolated in 1894 by Boorsma[1] from *Dioscorea hirsuta*, Bl., and obtained in a crystalline condition by Schutte[2]. On the basis of degradation experiments, Gorter[3] in 1911 suggested that the alkaloid belonged to the tropane group, and proposed the following structure:



In 1937, Leyva and Gutierrez[4] isolated from the tubers of *Dioscorea hispida*, Dennst, a base which gave the same colour reactions and possessed the same toxicological properties towards mice and monkeys as dioscorine. Although the base could not be crystallized, and no derivatives were described, these authors considered their product to be identical with dioscorine.

In this Laboratory, the isolation of the alkaloidal material from *D. hispida* has been repeated by a modified procedure. From 3·5 kgm. of the tubers, 2·0 gm. of an oily base was obtained. The base, which was purified through its hydrochloride, distilled *in vacuo* without decomposition, and gave the same colour reactions as dioscorine. It crystallized on keeping, and formed beautifully crystalline derivatives, all of which gave analytical figures in support of the formula $C_{13}H_{19}O_2N$ for the alkaloid. The accompanying table shows how the properties of the alkaloid and its derivatives compare with the properties of dioscorine as described in the literature.

It seems that, in spite of discrepancies, the base may be identical with dioscorine; but this question must be regarded as *sub judice*. An investigation of the molecular structure of the substance is in progress. The ultra-violet and infra-red absorption spectra show that an αβ-unsaturated lactone system is present. On oxidation with acid permanganate the base yields only formaldehyde, and the absence of acetaldehyde and acetone as products of this reaction would appear to exclude an ethylidene and an *iso*propylidene group respectively. It may be concluded that either Gorter's formula for dioscorine must be revised, or that the base from *D. hispida* is not dioscorine.

	Dioscorine (m.p.)	Alkaloid from *D. hispida* (m.p., uncorrected)
Free base	43·5° (ref. 2)	54–55°
Hydrochloride	204° (ref. 2)	210–211° (decomp.)
Methiodide	213° (ref. 3)	203° (decomp.)
Picrate	183–184° (ref. 2)	187° (decomp.)

I am grateful to Sir Robert Robinson for his interest in this investigation.

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Artefacts in the Chromatography of Mixtures of Amino-acids containing Cysteine

In the course of an investigation of the amino-acid metabolism of *Staphylococcus aureus*[1], using paper partition chromatography, I used the bromine water oxidation method, devised by Consden and Gordon[2], to avoid trouble during the separation of mixtures containing cysteine. The following procedure was used: to a neutralized solution of cysteine and glutamic acid (10 mgm. per ml. of each acid) enough bromine water is added to oxidize all the cysteine to cysteic acid (about 0·1 ml. of bromine water saturated at 20° C. per mgm. of cysteine hydrochloride); the solution is then evaporated to dryness *in vacuo* at room temperature to remove the slight excess of bromine and the hydrobromic acid formed during the reaction. The residue is dissolved in a small amount of distilled water and dried three times, then made up to the original volume and neutralized. Chromatographic separation on paper (Whatman No. 1 or No. 3), with butanol/acetic acid/water as solvent[3], shows, as illustrated on the diagram, four unexpected spots giving slowly a reddish-purple colour with ninhydrin. The two top ones (α_1, very weak, and α_2, stronger) give, after elution and acid hydrolysis (in 6*N* hydrochloric acid, 3 hr. at 105° C.), strong cysteic acid spots on a new chromatogram. The two others (β, strong, and γ, weak) run between the two initial amino-acids and are hydrolysed into cysteic and glutamic acids; they move also as single spots in a propanol/water mixture[4] (80 : 20, v : v). These spots are not due to incomplete oxidation, since excess of bromine water does not prevent their appearance; working at 0° C. does not affect the result.

New spots are also obtained when other amino-acids (glycine, alanine, valine, serine, arginine) and also triethylamine are used instead of glutamic acid; they move in butanol/acetic acid/water between