LXVI.—*Note on the Action of Sodium Ethoxide on Deoxybenzoïn.*

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IN attempting to prepare various substituted derivatives of deoxybenzoïn, $\text{C}_6\text{H}_5\cdot\text{CO}\cdot\text{CH}_2\cdot\text{C}_6\text{H}_5$, by heating mixtures of deoxybenzoïn with sodium ethoxide and various halogen compounds, a quantity of stilbene, $\text{C}_6\text{H}_5\cdot\text{CH}:\text{CH}\cdot\text{C}_6\text{H}_5$, was always obtained as one of the products. Further experiments have shown that deoxybenzoïn when heated with sodium ethoxide alone at 170° , in sealed tubes, is partially converted into stilbene. Five grams of the ketone were heated with the equivalent quantity of sodium ethoxide at 170° during 3—4 hours. When cool, the contents were poured into water, and after the oil which was thus thrown down had solidified, it was dissolved in hot alcohol; on cooling, the stilbene separated in large, glistening, slightly fluorescent plates melting at 125° .

	Theory.	Found.
C.....	93·33 per cent.	93·20 per cent.
H.....	6·66 „	7·14 „

From 40—50 per cent. of the deoxybenzoin was thus obtained as stilbene. The mother liquor from the stilbene, when concentrated, yielded an oil which solidified on cooling, and melted at about 60°. This, on recrystallisation from hot light petroleum (b. p. 40—50°), separated in long, glistening, prismatic needles, which melted at 63°. It is readily soluble in ether, alcohol, chloroform, and hot light petroleum. Analysis proved it to be hydroxydibenzyl,

the so-called stilbene hydrate.

	Theory.	Found.
C.....	84·84 per cent.	84·91 per cent.
H.....	7·07 „	6·86 „

This compound has previously been obtained by Limpricht and Schwanert (*Annalen*, 1870, **155**, 62), by the reduction of deoxybenzoin with sodium amalgam. It is characterised by the readiness with which it loses the elements of water, and is converted into stilbene.

When distilled under atmospheric pressure, an oil passed over between 290° and 310°; this solidified on cooling, and proved to be stilbene itself. The hydroxy-derivative also loses water when heated with dilute sulphuric acid.

From these facts it is evident that the hydroxydibenzyl is first produced by the reducing action of the sodium ethoxide, and that this is afterwards converted into stilbene by the loss of water.

Experiments were also made by heating deoxybenzoin with sodium methoxide, but not a trace of stilbene was formed. This is interesting when compared with the results obtained by Lobry de Bruyn on the action of sodium methoxide and ethoxide on various aromatic nitro-derivatives.

De Bruyn has shown that whilst sodium methoxide merely acts as a substituting agent, displacing a nitro- by a methoxy-group, the ethoxide under the same circumstances also acts as a reducing agent, producing more or less of the corresponding azo-compounds. It would thus appear that sodium methoxide is much to be preferred to the ethoxide if it is desired to prevent reduction taking place.