ON A NEW GREEN COLORING MATTER FROM BENZYLMETHYLANILINE.

(*Preliminary Notice.*)

BY JAMES H. STEBBINS, JR.

E. &. O. **FISHER** have shown that benzaldehyde in the presence of a dehydrating medium (such as zinc chloride), can be made to unite with tertiary amines (as dimethylaniline), to form the leuco-bases of new and interesting dyestuffs. They obtained thus from benzaldehyde and dimethylaniline, the leuco- base of bitter almond oil green, or tetramethyldiamidotriphenylcarbinole, which was found to be identical with Doebner's malachite green, obtained by the action of benzotrichloride upon dimethylaniline.

Using this reaction, it seemed of interest to extend the investigation somewhat further, and try the action of benzaldehyde upon other tertiary aromatic amines. For this purpose I selected a new compound (to be described in a subsequent paper), obtained by the action of benzylchloride upon methylaniline, and which may be called benzylmethylaniline. This new tertiary base was then treated according to the directions of E. & O. Fisher.

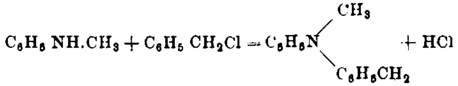
Two pts. benzylmethylaniline were mixed with 1 pt. of benzaldehyde and 1 pt. of fused zinc chloride, and heated on the water bath until the smell of benzaldehyde had nearly disappeared.

The melt was now poured into a flask and an excess of caustic soda solution added. Steam was then passed through the mixture to drive off any unaltered benzaldehyde or benzylmethylaniline which might be present. The remaining mass was then shaken up with ether, and filtered from the zinc precipitate.

On evaporating the ether, a thick yellowish colored oil was left behind, which showed no tendency to crystallize, even upon long standing.

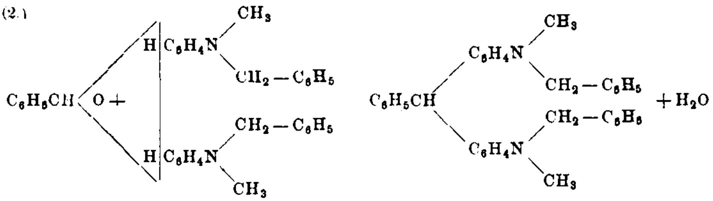
This oil is the leuco-base of a green coloring matter, and may be called dimethyldiparaamidoditolylphenylmethane. It is formed according to the following equations.

(1.)



$$C_6H_5NH.CH_3 + C_6H_5CH_2Cl = C_6H_5N\begin{matrix}\diagup CH_3\\ \diagdown C_6H_5CH_2\end{matrix} + HCl$$

(2.)



$$C_6H_5CH\langle O + \left|\begin{matrix} H\ C_6H_4N\begin{matrix}\diagup CH_3\\ \diagdown CH_2-C_6H_5\end{matrix} \\ H\ C_6H_4N\begin{matrix}\diagup CH_2-C_6H_5\\ \diagdown CH_3\end{matrix}\end{matrix}\right. \quad C_6H_5CH\begin{matrix}\diagup C_6H_4N\begin{matrix}\diagup CH_3\\ \diagdown CH_2-C_6H_5\end{matrix} \\ \diagdown C_6H_4N\begin{matrix}\diagup CH_2-C_6H_5\\ \diagdown CH_3\end{matrix}\end{matrix} + H_2O$$

This leuco-base on being treated with oxidizing agents, is converted into a fine green coloring matter. The oxidation may most conveniently be performed in the following manner:

One pt. of the leuco-base was heated with ½ its weight of chloranil on the water bath until the melt had become hard and assumed a fine, coppery luster.

It was then allowed to cool, broken up, boiled with KOH and $AgNO_3$ in order to remove the hydrochloranil, which goes into solution. On cooling, the mass becomes brittle, and may be removed from the alkaline solution and washed.

In this state the coloring matter appears of a dark green color. It is soluble in alcohol with the same shade, but is insoluble in water. It is also sparingly soluble in HCl.

Whether this compound is really constituted as above set forth, I am unable at present to decide, as the investigations relating to it are still incomplete.

The subject will be continued at some future time.