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Ring Closure of N-Methylcycloheptylamine

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On standing for several days, the light yellow material acquired a dark greenish-blue color, later becoming practically black. Presumably this color change was due to intra-molecular oxidation and nitration giving a mixture of products very difficult to identify.

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RING CLOSURE OF N-METHYLCYCLOHEPTYLAMINE

GEORGE H. COLEMAN AND JOSEPH J. CARNES

Previous work in this laboratory has shown that secondary N-chloroalkylamines lose the elements of hydrogen chloride to form heterocyclic amines when heated in sulfuric acid solution. This reaction has now been applied to the preparation of the bicyclic compound tropane (8-Methylazabicyclo [3, 2, 1] octane).

N-Methylcycloheptylamine was prepared from cycloheptanone and methylamine by condensation and reduction of the resulting imine. This compound formed 85-95% yields of the chloromine when treated with chlorine. The N-chloro-N-methylcycloheptylamine when heated at 65°-67° in 84% sulfuric acid gave tropane in 40-42% yields. This was identified by its physical constants and by the melting points of the picrate, chloroplatinate, and chloroaurate.

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STABILITY OF CYSTEINE SOLUTIONS

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The stability of cysteine in acid solution increased with increase in acidity (0.1 to 6N HC 1). When the solutions were made in conductivity water and stored under nitrogen, less than 1 per cent of the cysteine was oxidixed in 7 days.

Cysteine did not appear to be oxidized when it was subjected to the conditions obtaining in the hydrolysis of proteins by acids. Treatment of cysteine solutions with decolorizing charcoal pro-