

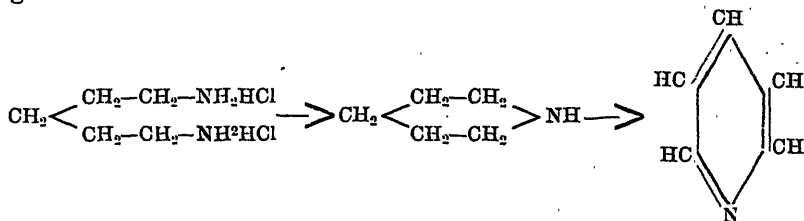
contained a pyridin nucleus. Such a definition would shut out such very important compounds as caffein and theobromin, and it is perhaps best, simply to view them as plant derivatives containing nitrogen, in which the nitrogen is contained in a cyclic atom complex.

As pyridin is the compound from which most of the alkaloids are derived, it may be well to speak of it somewhat in detail.

It consists, according to Körner, whose view has been generally accepted, of a benzene ring in which a methin group has been replaced by a trivalent nitrogen atom.

Piperidin $C_6H_{11}N$ bears a close relation to pyridin and following up the researches of Cahours, Hofmann, by the action of bromine on the former compound, converted it into a substance having the empirical formula, $C_6H_8NOBr_2$, which he held to be a brominated pyridin derivative. That there was a close connection between these two substances was shown by the oxidation of piperidin to pyridin by means of sulphuric acid.

The full synthesis of piperidin was accomplished by Ladenburg by the dry distillation of penta menthylendiamin hydrochloride. The relation between these three substances may be shown by the following scheme :



The next synthesis which was effected was that of coniin, the alkaloids of conium maculatum. It was of interest also because it belongs to the somewhat restricted group of alkaloids which contain no oxygen, and Liebig, Gerhardt, Kekulé and Hofmann submitted it to close investigation without elucidating its constitution. It was Hofmann who, in 1881, proved that it was a compound closely related to piperidin but his conclusions, drawn from experiments with methyl and dimethyl piperidin as to its exact constitution, were unfounded.

Koenigs, after the conclusion of Hofmann's investigation came to the view that coniin must be a propyl piperidin. This view found a convincing proof in the work of Hofmann, who, by the distillation of coniin with zinc dust, discovered a base conyriin, which was not as expected, a reduction, but an oxidation product of coniin, and which stood in the same relation to it that pyridin does to piperidin, and