

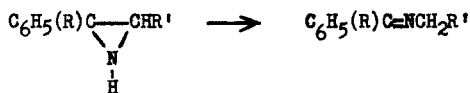
AZIRIDINES IX. THE ISOMERIZATION OF 1,2,3-TRIPHENYLAZIRIDINE

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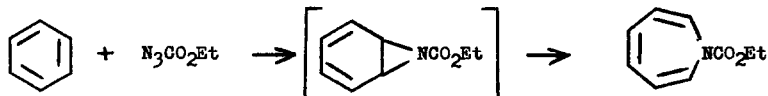
(Received 10 September 1964)

The only recorded examples involving scission of the carbon-carbon bond of the aziridine ring are the pyrolyses of 2,3-diphenylaziridine (1a,b) and 2,2-diphenyl-3-methylaziridine<sup>(2)</sup> into benzalbenzylamine and ethylimino-benzophenone respectively:



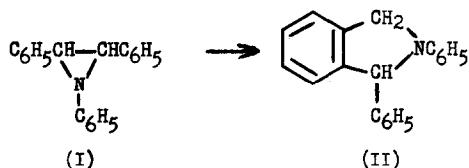
R	R'
H	C <sub>6</sub> H <sub>5</sub>
C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>

The irradiation of a solution of ethyl azidocarbonate in benzene with ultraviolet light to give N-ethoxycarbonylazepine<sup>(3)</sup> might constitute another example since this reaction is presumed to give first an azanorcaradiene which rearranges at once to the isomeric azepine.



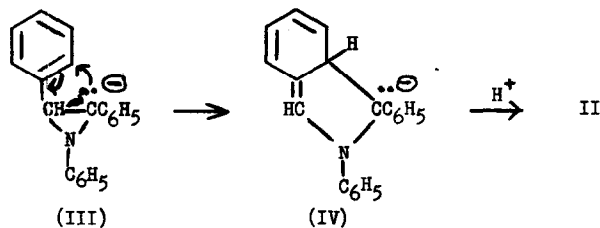
We wish to report quite another type of transformation of an aziridine in which a carbon-carbon cleavage of the ring occurs.

Reaction of 1,2,3-triphenylaziridine<sup>(4)</sup> (I) with potassium t-butoxide in heptane or toluene at 180° in a sealed tube for three days formed 1,2-diphenylisoindoline (II) in 70% yield:



The product was identified unequivocally by comparison of infrared spectra and a mixed melting point with an authentic sample prepared according to the method described in the literature.<sup>(5)</sup>

The reaction probably proceeds by the formation of the carbanion III followed by an attack on the benzene ring to give IV which is then protonated and tautomerized to 1,2-diphenylisoindoline:



The reaction is reminiscent of a Sommelet-Hauser rearrangement<sup>(6)</sup> and is one of the first examples of a carbanion rearrangement involving an aziridine ring.\*

We wish to thank Professors A. R. Katritzky, G. L. Baker and V. Boekelheide for valuable assistance in interpreting the NMR spectrum of the product of isomerization. Acknowledgment is made to the donors of The Petroleum Research Fund, administered by the American Chemical Society for support of this research.

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\* The mild base catalyzed epimerizations of trans-1-benzyl-, 1-cyclohexyl-, and 1-methyl-2,3-dibenzoylaziridines to the corresponding cis forms as well as the epimerizations of trans-1-benzyl- and 1-cyclohexyl-2-phenyl-3-benzoylaziridines into the cis isomers have been observed in these laboratories. Unpublished work by H. W. Heine, A. B. Turner, and J. Irving.