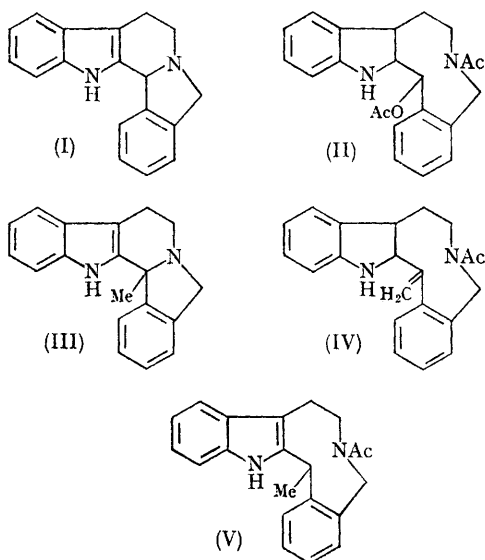


New Indolo[3,2-e][2]benzazonines from Tetrahydro-13H-isoindolo[1,2- α]- β -carbolines

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A RECENT Communication by Harley-Mason and his co-workers¹ prompts us to report some findings with regard to the formation of nine-membered rings by cleavage with acetic anhydride. This reaction has been applied to the tetrahydro-carboline system first by Dolby², and then by us.^{3a,b}

On heating (I)⁴ under reflux with acetic anhydride for 3 hr., we obtained (II) in 80% yield (m.p. 248°, from ethanol; ν_{\max} 1750 and 1620 cm^{-1}). Under the same conditions (IV) was isolated from (III)⁵ in quantitative yield. [(IV) had m.p. 241°, from ethanol; ν_{\max} 1620 cm^{-1} , n.m.r. spectra δ 4.94 (2H singlet), 5.06 and 5.59 (1H each, singlet).] When (IV) was shaken with palladium-charcoal in ethanol in hydrogen atmosphere at 20° and at atmospheric pressure, one equivalent of hydrogen was consumed. The reaction product (V) (m.p. 206°, from ether-light petroleum) was isolated in 90% yield.

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³ (a) C. H. Boehringer Sohn, German Patent Application B 75213 (appl. 29.1.1964), unpublished; (b) K. Freter, H. H. Hübner, H. Merz, H. D. Schroeder, and K. Zeile, *Annalen*, 1965, **684**, 159.

⁴ S. Wawzonek and G. E. Nelson, *J. Org. Chem.*, 1962, **27**, 1377.

⁵ S. Wawzonek and J. D. Nordstrom, *J. Med. Chem.*, 1965, **8**, 265.