

REACTIONS OF PYRYLIUM SALTS WITH PYRIDINIUM AND  
SULPHONIUM YLIDS <sup>1</sup>

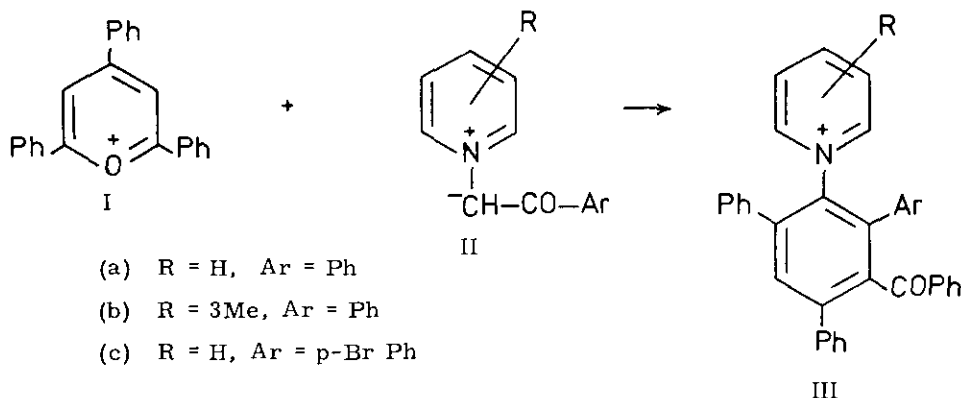
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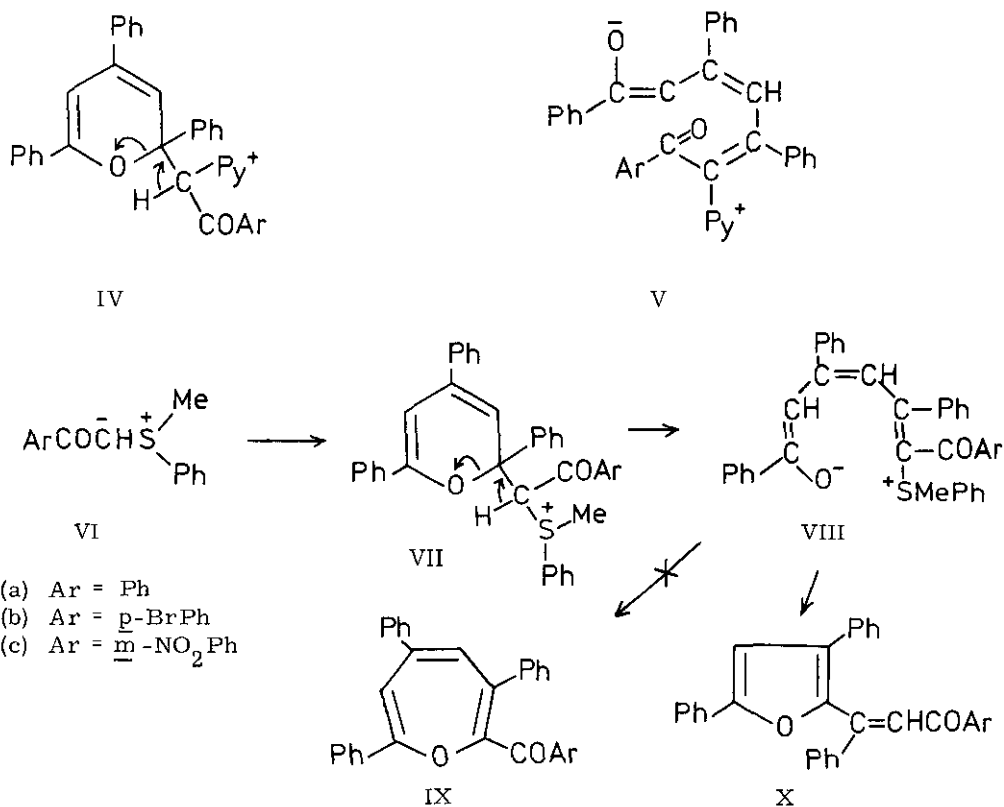
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Pyrylium salts with pyridinium acylylids give  
1-arylpseudopyridinium cations by a RORC mechanism, whereas  
sulphonium acylylids afford furans.

Although numerous conversions of pyrylium salts into other heterocyclic and homocyclic ring systems are known,<sup>2</sup> their reactions with ylids have been very little investigated. We now report our preliminary results of such reactions which are of considerable synthetic interest.

2,4,6-Triphenylpyrylium perchlorate I reacts with the pyridinium acylylids IIa-c to form the arylpseudopyridinium perchlorates III. This reaction involves intermediates of types IV and V. The products IIIa-c<sup>3</sup> displayed one-proton singlets in the n. m. r. spectra at  $\delta$  7.91  $\pm$  0.02 for the 5-position hydrogen of the aryl group and  $\nu(\text{C}=\text{O})$  at 1670  $\pm$  2  $\text{cm}^{-1}$  for the benzoyl group. Other spectroscopic data confirmed the structures IIIa - IIIc.<sup>4</sup>





The sulphonium ylids VIa-c with 2,4,6-triphenylpyrylium perchlorate I gave products which could have been either the oxepins IXa-c or the furans Xa-c, in each case formed via intermediates VII and VIII. Infrared, n. m. r. and mass spectral data<sup>4</sup> could all be reconciled with either the furan or the oxepin formulation. We therefore arranged for X-ray crystallographic study,<sup>5</sup> which proved the furan structure Xa unambiguously.

The above reactions possess synthetic potential as will be reported later.<sup>4</sup>

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#### REFERENCES

- 1 N-Oxides and Related Compounds, Part XLIX, For Part XLVIII see A. R. Katritzky and M. P. Sammes, submitted to *J. C. S. Chem. Comm.*
- 2 K. Dimroth, *Angew. Chem.*, 1960, **72**, 331; H. C. van der Plas, 'Ring Transformations of Heterocycles', Academic Press, London, 1973, Ch. 4, p. 17.
- 3 Correct analytical data were obtained for all new compounds reported.
- 4 Further details will be provided in the full paper.
- 5 Carried out by R. L. Harlow and S. H. Simonsen, University of Texas.

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