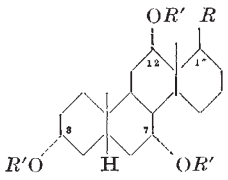

(I)

A. R = $-CHMe.[CH_2]_2.CO_2Me$, R' = H

B. R = $-CHMe.[CH_2]_3.CHMe.CO_2Me$, R' = H

C. R = $-CHMe.[CH_2]_2.CH(O)CMe.CH_2OAc$, R' = Ac

Most of the compounds were esters of bile acids; but some related carbinols have also been examined.

The important finding is that all the spectra so far examined are closely similar in the region 1,500–900 cm.$^{-1}$. Fig. 1 illustrates this, comparing the spectrum of methyl cholate (I*A*) with that of methyl 3α : 7α : 12α-trihydroxycoprostanate (I*B*) [1].

The same family likeness is observed in the spectra of the acetyl derivatives, including substances as different as scymnol tetraacetate (I*C*) and methyl triacetylcholate (I, R as in I*A*, R' = Ac).

Although the infra-red spectrum of a compound in the region of the 'molecular fingerprint' (1,200–900 cm.$^{-1}$) has been accepted as providing an unequivocal identification[2], examples of two compounds with very similar spectra have been recorded among the sterols[3] and the triterpenoids[4]. The finding that a whole class of compounds possess virtually the same fingerprint spectrum must modify these views, since a confident identification is impossible when, for example, an isolated compound is not highly purified. The small differences which exist are mainly in the 1,500–1,350 cm.$^{-1}$ region; this region is characteristic of CH_2 and CH_3 bending vibrations to which the side-chain makes a large contribution. In favourable circumstances, it may prove possible to identify the side-chain from the spectrum.

It is expected that similar group resemblances will be shown by the spectra of compounds related to other bile acids, for example, by 3α : 7α-dihydroxy steroids related to chenodeoxycholic acid. If this is the case, it may help in establishing the constitution of new compounds which are related to known steroids.

My thanks are due to Prof. G. A. D. Haslewood and Dr. R. J. Bridgewater for kindly providing compounds.

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July 27.

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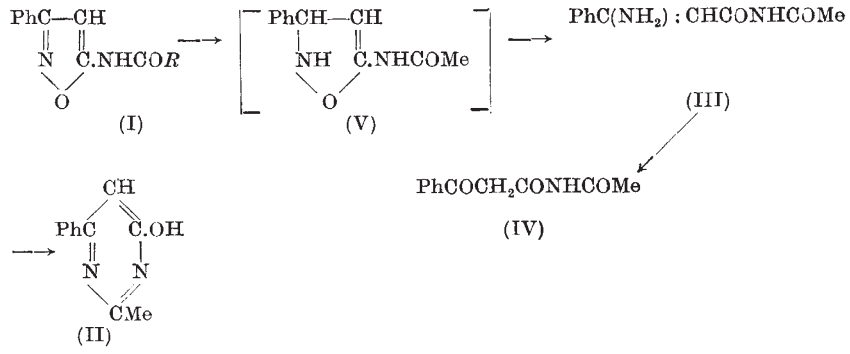
A New Synthesis of Pyrimidines

It has been observed that the hydrogenation of 3-phenyl-5-acetamido*iso*oxazole (I; R = Me)[1] in ethanol using platinum or Raney nickel catalysts gives rise to a mixture of 2-methyl-4-phenyl-6-hydroxy pyrimidine (II) and *N*(β-aminocinnamoyl) acetamide (III), melting point 136°. When the latter compound (readily hydrolysed by cold dilute acid to (IV), melting point 105°) was melted, or when its aqueous solution was warmed, a facile cyclization to (II) occurred; taking this reaction into account, the final yield of the pyrimidine is almost quantitative. An intermediate in the hydrogenation may be the *iso*oxazolin (V), by analogy with the products of hydrogenation of *iso*oxazolones[2]. A similar series of compounds was obtained from (I; R = Ph).

The ready cyclization (III → II) provides an attractive basis for the biogenesis of the pyrimidine structure from the small metabolic units suggested from biochemical studies with isotopically labelled precursors[3], namely, a β-keto acid (or derivative), ammonia and a simple carboxylic acid.



A full account of this work and of similar reactions which are still being investigated will be reported elsewhere.

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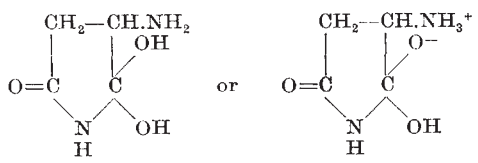
Contribution of the Ultra-Violet Absorption Spectrum of Asparagine to the Problem of its Structure

Since Steward and Thompson first proposed their new cyclic structure for asparagine indicated in the formulæ[1],



there have been a number of communications which have questioned this point of view[2]. In commenting on these communications, Steward and Thompson emphasized the importance of collecting evidence on