## Novel Aromatization of Inositols in Dimethyl Sulphoxide-Acetic Anhydride

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DIMETHYL SULPHOXIDE in acetic anhydride has proved to be an efficient reagent for the oxidation of an isolated or sterically hindered secondary alcoholic group to a ketone group in steroids<sup>1</sup> and partly substituted carbohydrates.<sup>2</sup>

A unique, one-step aromatization of inositols (cyclohexanehexaols) following treatment with dimethyl sulphoxide-acetic anhydride is now reported.

myo-Inositol (2 g.) was stirred with a mixture of dry dimethyl sulphoxide (30 ml.), acetic anhydride (10 ml.), and dry pyridine (5 ml.) at 60-65° for 45 min. Treatment of the redbrown reaction mixture with ice-water deposited 1.9-2.1 g. (54-60%) of penta-acetoxybenzene, m.p. 153—158°. Recrystallization from 4:1 (v/v)ethanol-acetic acid raised the melting point to 166-168°. The product was identical (infrared spectrum, mixture m.p., and chromatography) with an authentic sample.<sup>3</sup>

Penta-acetoxybenzene has also been obtained

in good yield from epi-inositol, dextro-inositol, *lævo*-inositol, *muco*-inositol, and *scyllo*-inositol. Apparently, dimethyl sulphoxide-acetic anhydride is not a stereospecific oxidizing agent, in contrast to catalytic<sup>4</sup> or bacterial<sup>4</sup> oxidants, as scyllo-inositol, which has no axial hydroxyl groups and is known to be inert either to catalytic or bacterial oxidation,<sup>4</sup> is converted into penta-acetoxybenzene as readily as are the other inositols.

Surprisingly, penta-acetoxybenzene was not formed from either myo-inos-2-ose or DL-epiinos-2-ose, the known oxidation products obtained from myo-inositol.5 However, penta-acetoxybenzene was produced when the starting material "DL-xylo-4,5,6-trihydroxycyclohexenediolic was acid", the enolic form of a diketoinositol that is obtained by oxidation of myo-inositol with nitric acid.8b Thus, the conversion of inositols into penta-acetoxybenzene probably proceeds through a form of the diketoinositol as an intermediate.

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