dioxane, was taken as evidence for the superiority of the latter solvent. Dioxane was used, therefore, for the solvent in the remaining acyloin reactions rather than xylene.

Another condensation in dioxane using 20 g. of the purified trans-dimethyl ester 70 afforded the same amount of fraction B obtained with unpurified 70 (ca. 2 g.), but a substantial reduction was noted in the amount of fraction A isolated. The infrared spectrum of fraction A indicated incomplete separation from starting 70, and less than 100 mg. of cis-diketone 75 was isolated by column chromatography of the bismuth trioxide oxidation product of fraction A. The cis-diketone 75 was identified as before by comparison of the 2,4-dinitrophenylhydrazone derivative with an authentic sample of 76. No trans-acyloin products were isolated.

Acyloin fraction B, obtained from purified 70, was distilled in order to obtain a pure sample for characterization. The distillate had infrared absorption bands at 3400 cm.\(^{-1}\) and 1060 cm.\(^{-1}\), and the spectrum was identical to that of a sample of trans-1,3-cyclopentanediopropanol (79) obtained by the lithium aluminum hydride reduction of 53. A sample of the same dialcohol 79 was isolated by column chromatography of acyloin fraction B on silica gel and was converted to the p-nitrobenzoate derivative 80. The infrared spectrum of the derivative was identical to