CHAPTER IV

SUMMARY

Pure cis- (52) and trans-1,3-cyclopentanedicarboxylic (53) acids were prepared by stereospecific Arndt-Eistert homologation of the known cis- (44) and trans-1,3-cyclopentanedicarboxylic (45) acids, and large-scale, stereoselective synthetic routes to the isomeric dipropionic acids (52 and 53) were developed. The acyloin reactions at high dilution of dimethyl cis- (71) and trans-1,3-cyclopentanedicarboxylic (70) were investigated as possible methods for the synthesis of derivatives of the cis- (33) and trans-bicyclo[6.2.1]undecane (36) systems respectively.

In xylene or dioxane, dimethyl trans-1,3-cyclopentanedicarboxylic (70) was observed to undergo only abnormal reactions of the isolated ester functions with sodium, leading to the formation of several acidic and neutral products. The major acidic product was the starting trans-dipropionic acid 53, while the major neutral product was trans-1,3-cyclopentanediol (79), formed in 4 per cent yield. The acyloin reaction of dimethyl...