Reaction of a mixture of the two isomeric acids with an excess of acetyl chloride gives a product containing unreacted \(45\) and the cis-anhydride \(46\). This mixture may be separated simply by extraction with ether, in which \(45\) is soluble but \(46\) insoluble. Recrystallization of \(44\) and \(45\) afforded the pure compounds, the melting points of which were in agreement with the reported values\(^4\) for the pure stereoisomers.

In considering various methods for the homologation of \(44\) and \(45\) to the corresponding isomeric cyclopentane-dipropionic acids, it was necessary to choose one in which the stereochemistry of the starting acids is preserved. The Arndt-Eistert synthesis\(^4\)\(^3\),\(^4\)\(^4\) was chosen because of its simplicity and because of its demonstrated stereospecificity.\(^4\)\(^5\) In the Arndt-Eistert synthesis, illustrated below for \(44\), a carboxylic acid is converted to its acid chloride \(47\) which is then treated with an excess of diazomethane. The resulting diazoketone \(48\) undergoes silver-