matographic behavior of diastereomeric aliphatic compounds Ar-CH(X)-CH(Y)-Ar′ on silica. This group studied the behavior of different diastereomeric compounds of type RO_2C-CH(Br)-$CHCO_2R$ on alumina and silica (56) and the chromatographic separation of esters of *Z*- and *E*-2,3-diphenylicopropenoic acids (57). They used 20 computer-selected mobile phases on the basis of the Snyder theory. The application of the Snyder theory to the diastereoisomers was summarized.

Interesting separations were shown by Lippmann and Mann (58). Thin-layer and high-performance liquid chromatographic procedures for the analytical identification as well as column chromatographic methods for preparative separation of diastereomeric resorcinol-based calyx [4]arenes and for cavitands derived from these metacyclophanes were developed.

II. CHROMATOGRAPHIC METHODS OF CONFIGURATIONAL ANALYSIS

As in liquid chromatography, in thin-layer chromatography one may use one of three basic techniques for separation of enantiomeric compounds:

1. Direct separation by using chiral stationary phases, effected by the formation of diastereomeric association complexes
2. Separation on ordinary stationary phases by means of chiral additives in the eluent, which form diastereomeric complexes with the substrate
3. Separation on achiral stationary phases via diastereomeric derivatives formed by reaction of the sample with a chiral reagent

III. TLC ENANTIOMERIC SEPARATIONS BASED ON ADSORBENTS WITH CHIRAL CAVITIES

A. Resolution Mechanism

A different fit of the two enantiomers into the asymmetrical cavities—the key–lock principle—of these polymers effects separation of the antipodes. For optimal enantioselectivity, the secondary structure of the chiral spatially fixed matrix is decisive. This type of separation is usually called inclusion chromatography.

B. Paper Chromatographic Separations

The results of paper chromatographic investigations have strongly contributed to the present understanding of chiral separation mechanisms. As early as 1951, Kotake et al. (60) studied the influence of chiral eluents on the resolution of racemic amino acids. They obtained complete separation for tyrosine-3-sulfonic acid and partial separation for tyrosine and glutamic acid. Their conclusion, "It is most reasonable to consider that these resolutions are due at least in part to the asymmetric character of cellulose," stimulated numerous interesting publications about paper chromatographic separations (61–88). Obviously stimulated by the vain attempt to separate 3,4-dihydroxyphenylalanine though similar compounds could be separated, Dalgliesh (65) postulated in 1952 the "three-point attachment model"—i.e., for successful racemate separations, at least three simultaneous interactions (π–π interactions, dipole–dipole interactions, hydrogen bondings, steric repulsion) are required. In this context we wish to mention the work of Weichert (87), who studied, among other things, the influence of the hydrogen atom at the α-carbon of different amino acids on the antipode separation. As a result of steric constraints, neither the respective racemates nor the *N*-acetylated, *N*-methylated amino acids and amino acid esters could be separated by paper chromatography. Due to the extremely long developing times, however, this separation technique is seldom used in laboratories today.

Table 1 summarizes selected applications, including separation parameters.

Paper chromatography was used for the separation of diphenylmethyl alcohols (DPMA) of type ArCH(OH)ArR by Fu et al. (89). Aqueous hexadecyltrimethylammonium, bromide (0.05