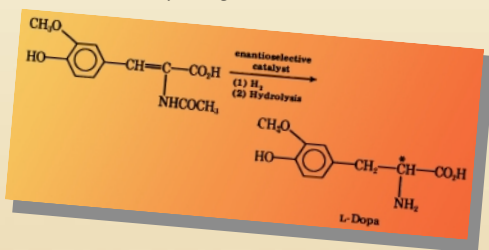
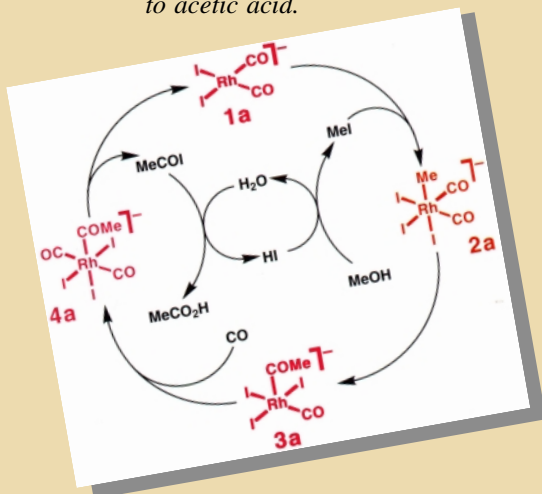


**16** *Enantioselective hydrogenation*

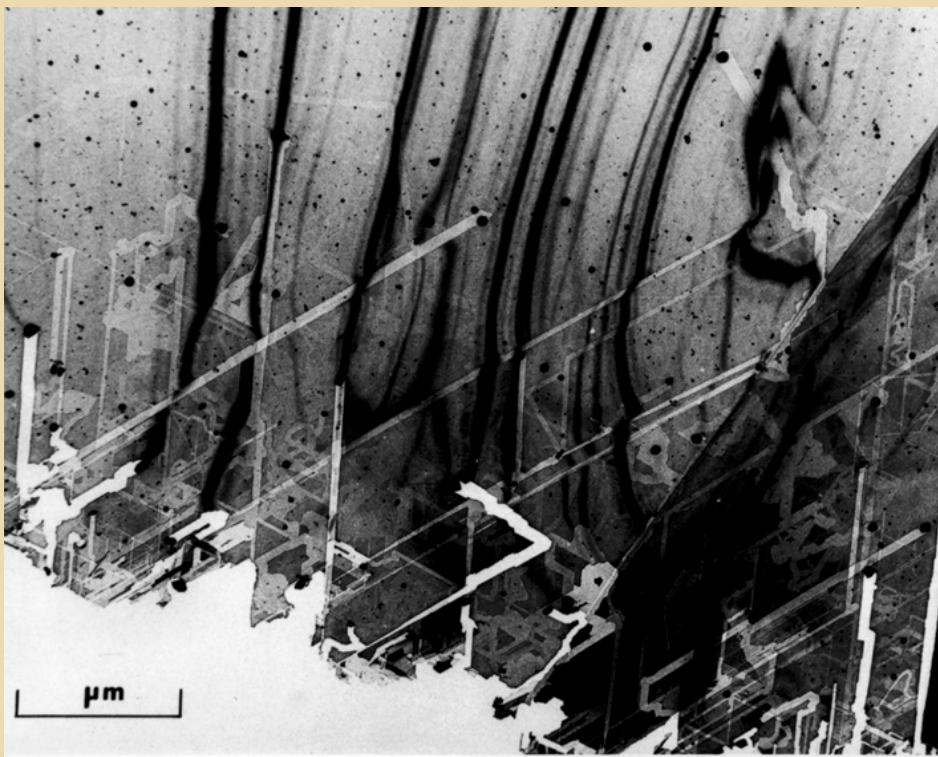


**17** *Cycle for the rhodium- and iodide-catalysed carbonylation of methanol to acetic acid.*



**14**

*Use of controlled atmospheric transmission electron microscopy for catalyst characterization and kinetics of catalysis.*



**1970s:** Demonstration of continuity of reaction rates determined under high vacuum conditions with single crystal catalysts and those of supported nickel catalysts at common industrial methanation operating conditions for nickel catalysts (J. T. Yates, Jr., T. E. Madey, D. W. Goodman and R. D. Kelley, Heterogeneous Catalysis Research Meeting, LBL-8975, UC-90d, Feb. 1979, pp 11-14.

**1970s:** First commercial plant for asymmetric synthesis using a totally synthetic asymmetric catalyst - developed by W. S. Knowles of Monsanto for the asymmetric hydrogenation in the production of L-Dopa.

**1970:** Definition of the types of Shape Selectivity in Zeolite Catalyzed Reactions (S. M. Csicsery, J. Catal., 19, 394 (1970)).

**1971:** Monsanto process to produce acetic acid with Rh catalyst.

**1971:** UOP introduces CCR (Continuous Catalyst Regeneration) Platforming at Coastal States Refining.

**1972:** Oscillations in the reaction rate for heterogeneous catalysis (H. Beusch, D. Figuth and E. Wiche, Chem. Ing. Techn., 44, 445 (1972)).

**1972:** R.J. Argauer and G.R. Landholt patent synthesis of ZSM5 (U53, 702, 886).