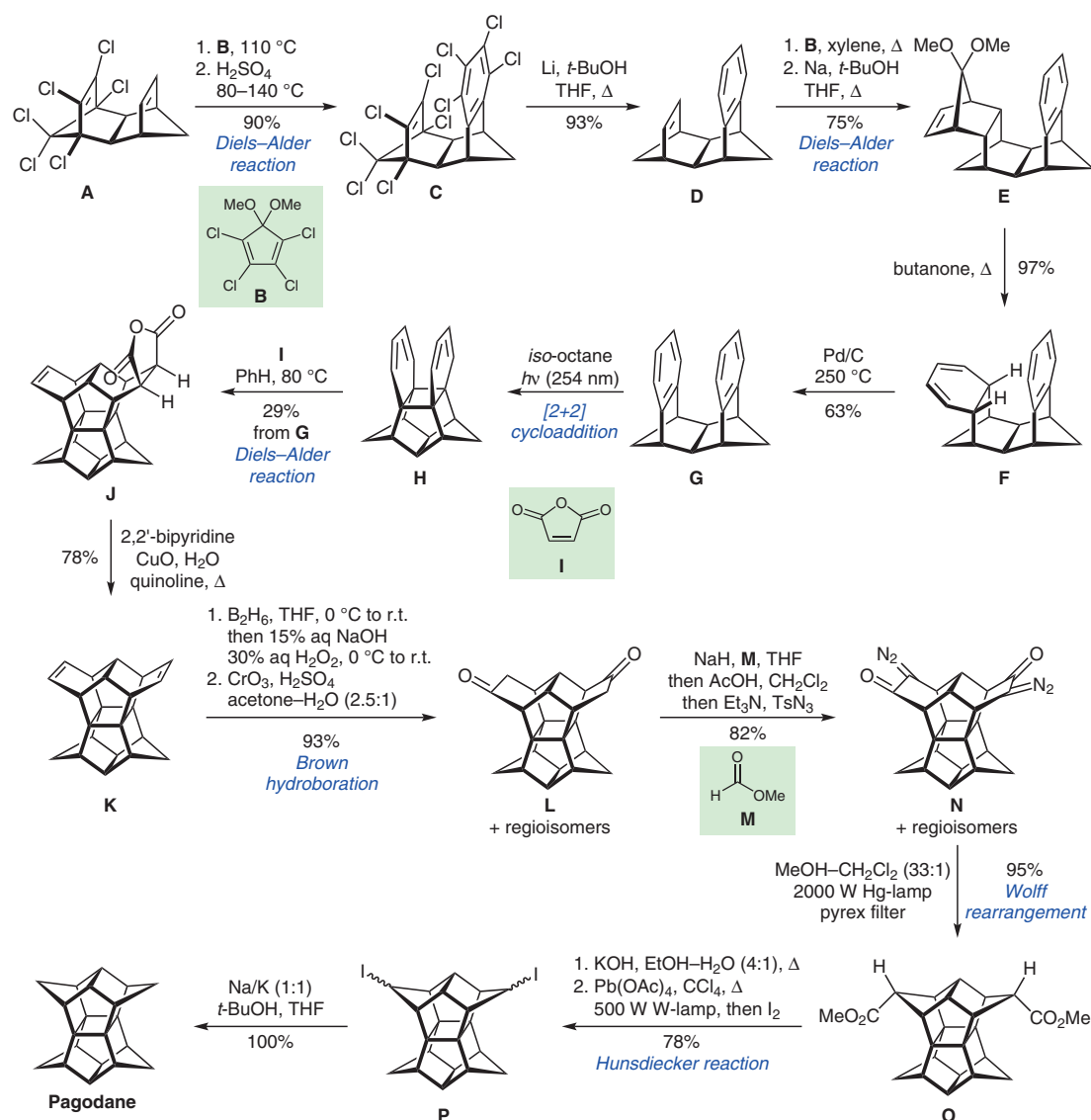


Total Synthesis of Pagodane



Significance: In 1987, Prinzbach and co-workers disclosed the first total synthesis of the undecacyclic strained compound pagodane. Their interest came from the close relationship of pagodane to the entirely pentagonal structure dodecahedrane. Later studies of Prinzbach focused on the synthesis of dodecahedrane and its derivatives from intermediates of the pagodane synthesis.

Comment: The synthesis of pagodane commences with the Diels–Alder reaction of isodrin **A** with diene **B**. Dechlorination followed by a second Diels–Alder reaction affords heptacycle **E**. Decarbonylation and dehydrogenation results in dibenzo compound **G**. Its irradiation leads to **H** via a reversible [2+2] cycloaddition. **H** is further elaborated into pagodane in nine steps.