Stereo-Controlled Synthesis of Prostaglandins $F_2\alpha$ and $E_2$ ($dl$)


**Synthesis of Prostaglandins $F_2\alpha$ and $E_2$**

**Significance:** In 1969, Corey and co-workers reported a landmark total synthesis of prostaglandins $PGF_2\alpha$ and $PGE_2$ which play an important role as hormones in mammalian tissue. Strategic application of a [2.2.1]-bicycloheptane enabled expedient access to the highly substituted cyclopentane core.

**Comment:** Bicycloheptane $D$ was accessed through Diels–Alder reaction between diene $B$ and $C$. Subsequent Baeyer–Villiger oxidation followed by hydrolysis and iodolactonization furnished lactone $G$, which was transformed into the natural products by a sequence involving two olefinations.