**Synthesis of Natural** 

Category

## Total Synthesis of (±)-Ishwarane

B, NaOEt, EtoH 
$$-16$$
 to  $-15$  °C  $10\%$   $Robinson annulation$   $Can. J. Chem. 1972, 50, 3455$   $C$   $Can. J. Chem. 1972, 50,$ 

**Significance:** Ishwarane is a sesquiterpene featuring a carbon skeleton with an intriguing tricyclo-[3.2.1.0<sup>2,7</sup>]octane core. After the first total synthesis of ishwarane reported by Kelly and co-workers in 1970/1971 (*J. Chem. Soc. D* **1970**, 1102; *J. Chem. Soc. D* **1971**, 479), Cory and co-workers present a highly efficient six-step sequence to the natural product exploiting carbon atom insertion.

**Comment:** Previously reported octalone **D** is rapidly elaborated into *cis*-decaline **F** through conjugate addition, Grignard addition, and dehydration. A cyclopropanation and C–H insertion cascade via putative carbene intermediate **G** yields (±)-ishwarane.

(±)-Ishwarane

## Key words

(±)-ishwarane

Robinson annulation

conjugate addition

Grignard addition

cyclopropanation

carbene C-H
insertion

