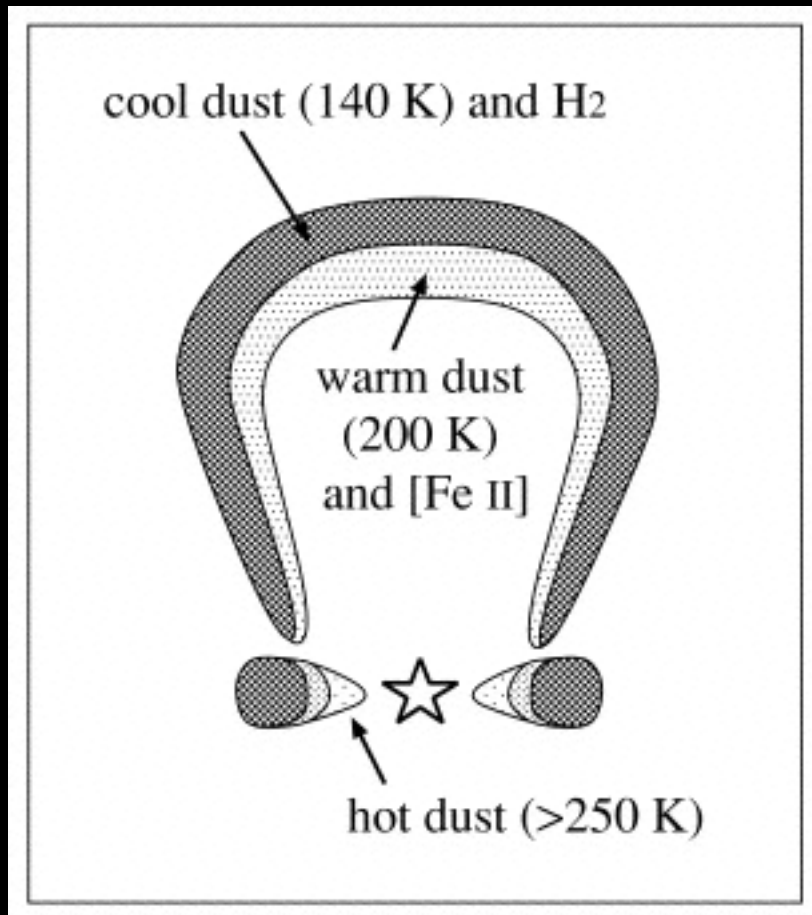


fossil record: the Homunculus nebula



20,000 AU

$\sim 0.125 M_{\text{Sun}}$ of dust

gas-to-dust mass ratio ~ 100

$> 12.5 M_{\text{Sun}}$ of ejecta in the lobes

$\sim 10\text{-}20\%$ of the mass in the equatorial torus

Kinetic energy: $10^{49} - 10^{50}$ ergs

(Smith+ 2003, Smith+ 2008)



N. Smith, NASA, HST

light echoes of η -Carinae

Chapter III

Light Echoes

light echoes of η -Carinae