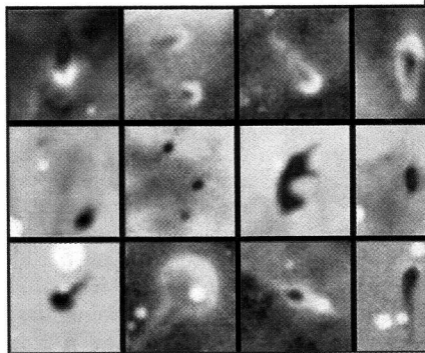


Stars Behaving Badly

Supernovas may grab the spotlight, but the massive stars that give rise to them put on flashy shows long before they blow up. Violent pulsations blast gas and dust into space for thousands of years in prologues to the stars' explosive deaths. Two observations described at the meeting cast light on these unstable phases—and the dramatic effects they can have on nearby stars.

In one event, the supergiant star Rho Cassiopeiae shed more mass than any other stellar eruption witnessed with modern instruments. A team led by astronomer Alex Lobel of the Harvard-Smithsonian Center for Astrophysics (CfA) in Cambridge, Massachusetts, used five telescopes in the



United States and Europe to monitor the star for a decade. During its latest eruption, a 200-day outburst that peaked in fall 2000, the star brightened and then dimmed dramatically as an ejected shell expanded at supersonic speeds. Temperatures in the star's distended atmosphere plummeted to an unusually chilly 4000 kelvin, allowing molecules such as titanium oxide to form. Analysis of the light absorbed by those molecules shows that the ejected shell contains about 10,000 times the mass of Earth, Lobel says.