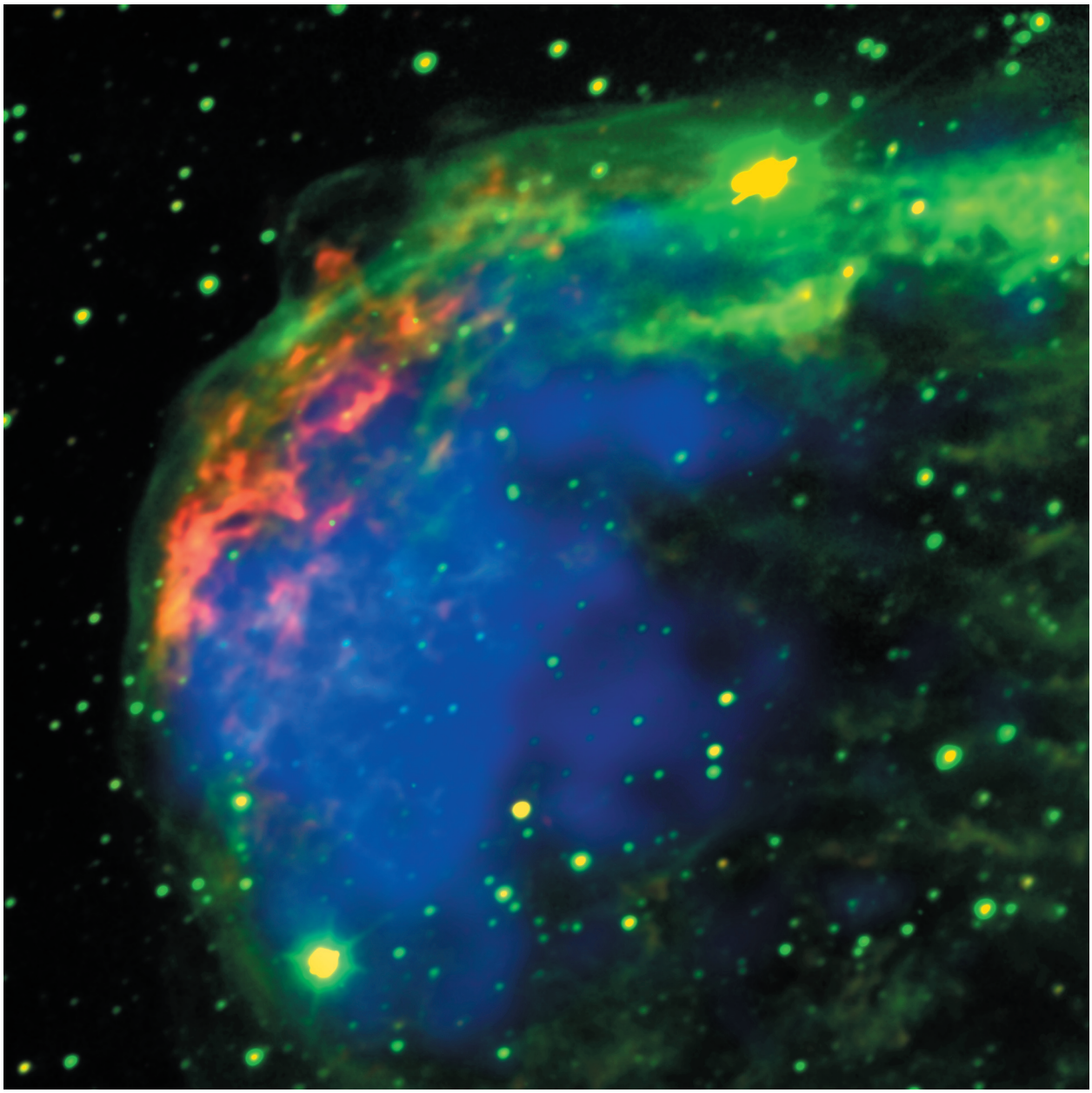

Chandra X-Ray Observatory Center

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The Crescent Nebula (NGC 6888): A gaseous shell around a massive star about 5,000 light years from Earth in the constellation Cygnus.
Credit: X-ray: NASA/UIUC/Y. Chu & R. Gruendl et al. Optical: SDSU/MLO/Y. Chu et al.

This composite X-ray (blue)/optical (red and green) image reveals dramatic details of a portion of the Crescent Nebula. About 400,000 years ago, the massive star HD 192163 (which is out of the field of view to the lower right) expanded enormously to become a red giant and ejected its outer layers at about 20,000 miles per hour. Two hundred thousand years later, the intense radiation from the exposed hot, inner layer of the star began pushing gas away at speeds in excess of 3 million miles per hour! The collision of the high speed stellar wind with the slower red giant wind compressed gas into a dense shell (red), and produced two shock waves: an outward-moving shock that is visible at optical wavelengths (green), and an inward-moving shock wave that created a bubble of two million degrees Celsius X-ray emitting gas (blue). Because massive stars explode as supernovas, knowledge of the environment around this star will help astronomers better understand supernovas and their remnants.

Scale: Image is approx. 8.2 arcmin per side.
Chandra X-ray Observatory ACIS Image