

# CRAB NEBULA

**WHO:** The Crab Nebula is a supernova remnant in the Milky Way Galaxy.

**WHAT:** The Crab contains a powerful “pulsar wind nebula,” the result of energetic particles and magnetic fields expelled from a pulsar, the dense core of what was once a massive star (see illustration below).

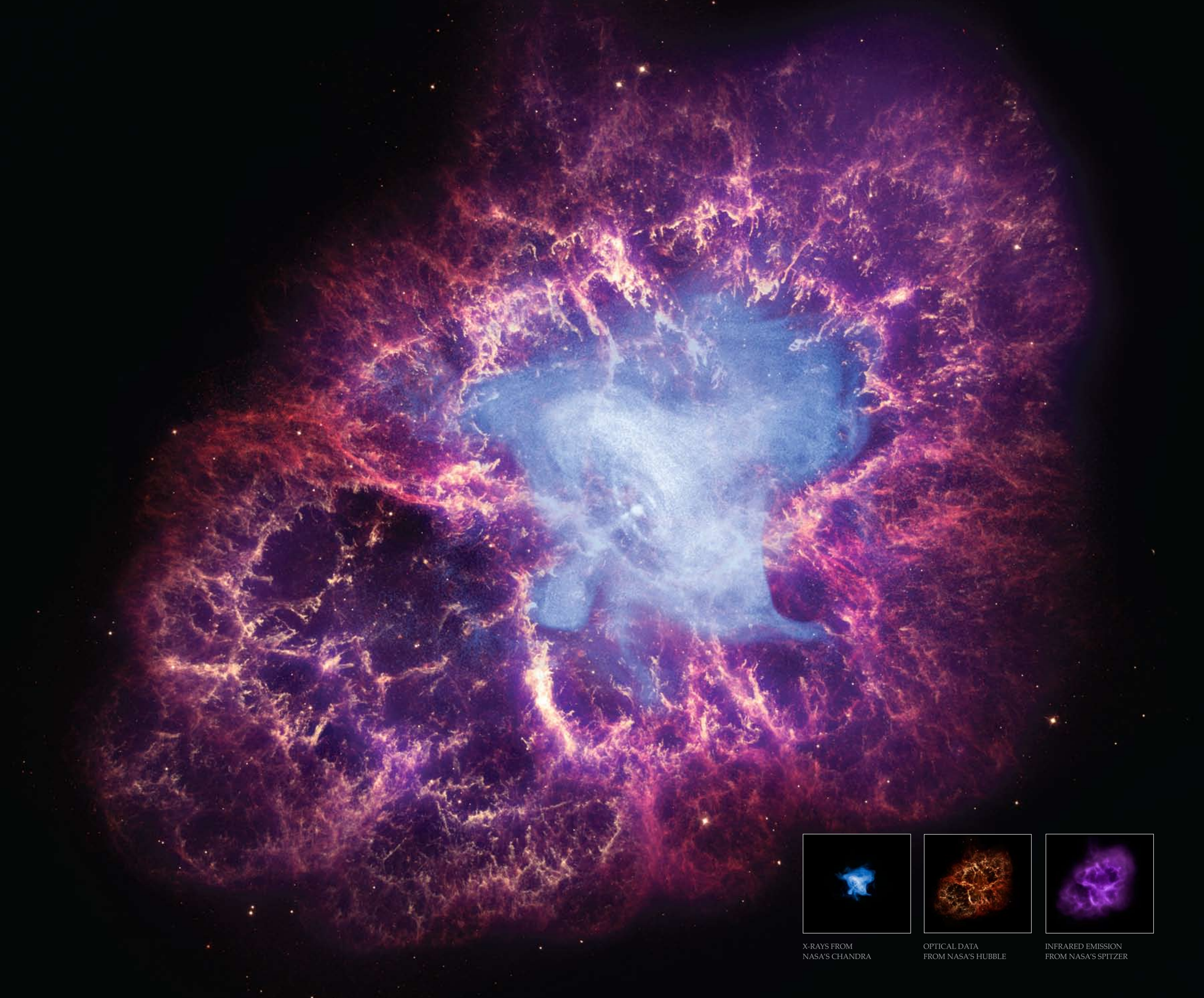
**WHERE:** Found in the constellation Taurus, the “bull,” the Crab Nebula is about 6,000 light years from Earth. Taurus is visible during the winter in the Northern Hemisphere.

**WHEN:** Chinese astronomers, and possibly others elsewhere in the world, noted the appearance of the

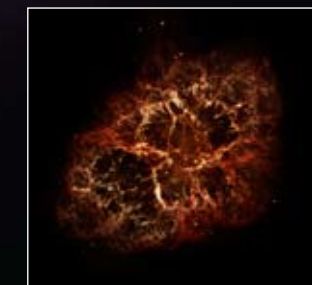
Crab supernova in the sky in 1054 A.D.

**HOW:** Pulsars are rapidly spinning objects so dense that a mass equal to that of the Sun is packed into a diameter of about 12 miles (the Sun is 870,000 miles across). The pulsars’ rapid spin combines with their ultra-strong magnetic fields to create powerful generators, forming pulsar wind nebulas that extend over many light years.

**WHY:** By studying how pulsars transfer their rotational energy into their surroundings, astronomers are able to better understand objects ranging from newly formed stars to disks around supermassive black holes. More at: <http://chandra.harvard.edu>



X-RAYS FROM NASA'S CHANDRA



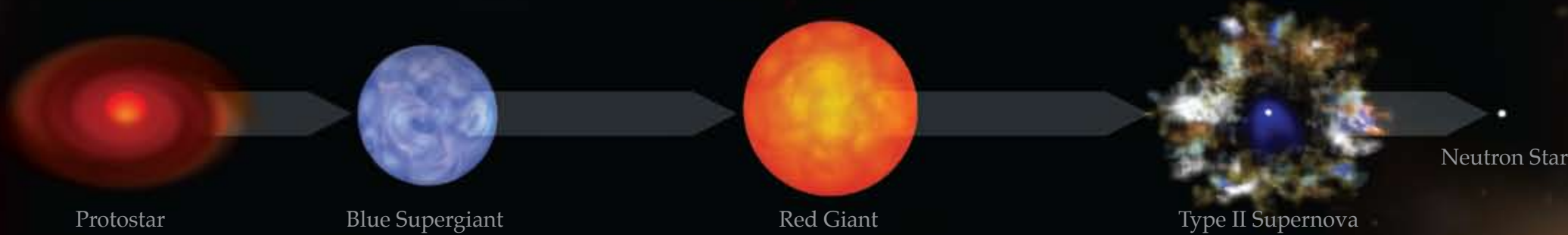
OPTICAL DATA FROM NASA'S HUBBLE



INFRARED EMISSION FROM NASA'S SPITZER

Stellar Nursery

## ILLUSTRATION OF STELLAR EVOLUTION PATH



Stellar Nursery

