

## THE JEWEL BOX CLUSTER

The Jewel Box, *Kappa Crucis* Cluster, NGC 4755, is an open cluster in the constellation Crux, originally discovered by **Nicolas Louis de Lacaille** during 1751–1752. This famous cluster was later named the Jewel Box by **Sir John Herschel** when he described its telescopic appearance as **"a casket of variously coloured precious stones."** It is regarded as one of the finest objects in the southern sky. It is visible to the naked eye as a hazy object of the fourth magnitude.

The Jewel Box cluster can be easily located some 1.0° southeast of the first-magnitude star *Beta Crucis*. The cluster is impressive when viewed with binoculars or a small or large telescopes. **The three brightest members of the cluster lie in a straight line known as the 'traffic lights' due to their varying colours.** This hazy star (the core of the cluster) was assigned the Bayer star designation *Kappa Crucis*, from which the cluster takes one of its common names. The modern designation *Kappa Crucis* has been assigned to one of the stars in the central



A-shaped asterism of the cluster, the third brightest cluster star, located at the base of the right leg of the A. This is a blue supergiant of spectral type B3Iae, shining at the apparent visual magnitude of 5.94V. Two other cluster stars are brighter than 5.77V magnitude at the tip of the A, and 15 arc minutes beyond the asterism toward *Beta Crucis*. **This cluster is one of the youngest known, with an estimated age of 14 million years. It has a total integrated magnitude of 4.2, is located 6,440 light years from Earth, and contains around 100 stars.**

Calculating its exact distance is difficult due to the proximity of the Coalsack Nebula, which obscures some of its light

Nicolas Louis de Lacaille saw the object only as a nebulous cluster due to the small aperture of his telescope, but was the first to recognize it as consisting of many stars. When viewed through an instrument of sufficient aperture like John Herschel did, the very different colour of its constituent stars give it the effect of a superb piece of fancy jewellery. Hence the name "Jewel Box". "Even though this cluster is neither especially large nor rich, it is an extremely beautiful object".

Early European navigators classified the Jewel Box as the star *kappa Crucis* since they had no telescopes to resolve it. And that's exactly how it looks to the unaided eye—stellar— even to a keen observer. **It is almost bright enough to be included on the flags of Australia and New Zealand.** But this star cluster, one of the treasures of the southern sky, is unforgettable in a small telescope. Nicolas de Lacaille, with his tiny half-inch telescope noticed that the star was a "nebulous cluster".

Large telescopes reveal almost 300 blue-white stars with a wide range of luminosity. This cluster is roughly the same age as the Double Cluster in Perseus, though it lies in the opposite direction in the galaxy, some 4,900 light years away from Earth.

### A BIT OF HISTORY

The 14th century writer **Dante Aligherhi** may have known about the four bright stars of the Southern Cross, perhaps hearing of them from explorers of the day. In his famed *Divine Comedy*, when he and his guide Beatrice finally ascended from Hell on the far (South) side of the world, they saw **four brilliant stars which they took to represent the four principal virtues: Justice, Prudence, Fortitude, and Temperance.**

