

## Tri-Color Images of M27 and M20:

By Greg Morgan

Color astronomical images are generated by either using color film or by stacking individual black and white images taken through colored filters. The two images below were taken with the SBIG Red, Green and Blue filter set. This set of filters is housed in a motorized filter wheel called the CFW-8A. Filter selection is made through the CCD camera control software.



**M27:** The Dumbbell Nebula. This is an 81 minute exposure composed of LRGB channels. This is my first LRGB image with the CFW-8A color filter wheel taken on 7/28/02 08:00 UT from Clovis CA. The Luminance = 24 min (12 x 1 minutes from Clovis and 12 x 1 minutes from Glacier Point on 7/6/02) unfiltered, Red = 16 x 1 min, Green = 16 x 1 min and Blue = 25 x 1 minutes with the 10" LX200 f/6.3 & ST-10XME. All 4 channels are at 1x1 binning, registered and color combined in AIP4WIN. RGB post processing was done in Adobe Photoshop.



**M20:** The Trifid Nebula. This is a 2.5 hour exposure composed of RGB channels taken on two nights, 8/4 and 8/5/02 from Clovis CA. The Red = 20 x 2 minutes, the Green = 20 x 2 minutes and the Blue = 23 x 3 minutes. This makes for a 40, 40, and 69 = 149 minute image. The images were dark subtracted from an average of 5 dark frames for each channel (-12.0 C). The images were co-registered in AIP4WIN. The RGB combination was done in CCDOPS5 with RGB ratio of 1.2 0.9 and 1.7 respectively. The image was shot with the 10" LX200 f/6.3 & ST-10XME. All 3 channels are at 1x1 binning (2184 x 1472 pixels).