

Heavens Above - A Chronicle - 10 - May Nights

As mentioned in the Introduction Section, this is a collection of my columns that specifically relate to things best observed in the month of May. In most cases, they could also be observed in April and June at later or earlier times respectively.

CONTENTS LIST FOR MAY NIGHTS

1. Double Act
2. A Double Cross
3. Heavenly Triple Cross
4. Star Spangled Tresses
5. Carina – It's In Your Stars
6. The Crux of the Matter
7. Crossed Fingers Find South

1. Double Act

for 12th May 1999

Nothing can be more guaranteed to get an “ooh” or an “aah” from the public at an astronomy Open Night than when we show them a certain star through a low powered telescope. To their naked eye we point out the first of the two Pointer Stars (that's the one furthest from the Southern Cross). Then we invite them to look through the telescope. “Ooh,” usually followed by “...but there's two of them,” or “they look like car headlights.” It never fails.

Alpha Centauri is unique in our sky. Just as Sirius is the brightest star in the sky, Alpha Centauri is the closest. If you had a spaceship that could travel at the speed of light (300,000 km per second), it would take you over 4 years to reach Alpha Centauri. 4.36 years to be exact. We describe that distance as 4.36 light years, which is about 280,000 times the distance from Earth to our Sun.

It's also the third brightest star, after Sirius and Canopus.

But its fascination in the small telescope is that it is actually two stars, both very similar in size and colour to our Sun. They call that a ‘binary star’. They orbit around each other like dancing partners, only one rotation takes 80 years so it's a slow dance.

But wait...there's more. Alpha Centauri is actually a triple star system, with the third star orbiting around the other two. You need a very powerful telescope to see it as it's a red dwarf, one of the smallest, dullest stars in the sky. It takes about 1 million years to orbit the other two, and at present it is about one tenth of a light year closer to Earth, at 4.23 light years.

So really, when we talk about Alpha Centauri, we mean the binary pair. And it's up there now, in the south along with the Southern Cross.

The name of the third star? Well, it's the answer to that popular Trivia Night question. – ‘After the Sun, what's the closest star to Earth?’ Proxima Centauri.

2. A Double Cross

for 15th May 2001

This is a particularly good time of the year to see Crux, the Southern Cross. It is virtually vertical, as a cross should be. From 7 to 10pm this month it is very high in the sky to the south, so you don't have to be away from trees or houses to see it clearly. Also, it is very bright and from Campbelltown front or back yards you shouldn't have any trouble seeing its four main stars or even its fifth star between the right hand and bottom stars.

If you have binoculars, check out the faint fuzzy star at about 8 o'clock 3 moon diameters from the left star of the cross – this is the beautiful Jewel Box cluster of stars that has an arrow head shape.

It's also a good opportunity to compare the Southern Cross to its famous alter-ego, the False Cross. Many people manage to confuse them.

The False Cross is almost twice as large as Crux and is pointed in the same direction – straight up. The easiest way to find it is: extend your left arm towards Crux, with your fingers spread open. With your little finger touching Crux, your thumb (to the right) should just reach the left side of the False Cross which will be a little below Crux.

You'll see how the False Cross, though its stars are fainter, still forms a distinct cross, so it's easy to see how people get them confused. But you won't now, will you?

The False Cross is actually shared by two constellations, Carina and Vela, two parts of the giant ship of the sky, Argo Navis.

3. Heavenly Triple Cross

for 13th May 2003

We all know about the famous Southern Cross and how to find it. Just in case, this week around 8pm, it is directly south and about 60° high in the sky, bolt upright, with its two pointers to its left

You may also have heard of the False Cross, often mistaken for the Southern Cross. The False Cross is an asterism made of two stars

each from the constellations Carina and Vela. It is a larger but fainter cross, easily found one spread hand span to the west of the Southern Cross. Though not a proper constellation, it is still officially recognized and identified on most star maps.

It may come as a surprise that there is yet another 'cross' in the same area of sky. It has no official name and won't be identified as a cross on any star map, but I have seen it named as "the Diamond Cross," possibly because it looks more like a diamond (perfectly regular sides) than an elongated cross.

Guess where you can find it? It lies in Carina, exactly half way between the Southern and False Crosses and a bit lower to the south. "Diamond Cross" is slightly larger than the False Cross.

An interesting fact is that all three crosses, so close together in the sky, are aligned in exactly the same direction, being vertical at this time of year. So close to Easter, the coincidence of a rank of three adjacent celestial crosses is amazing.

4. Star Spangled Tresses

for 27th May 2003

Visible this month is a very faint constellation which tells a tender love story. It is Coma Berenices, or Berenice's Hair.

At around 8.30pm, look directly North, about 30° above the horizon. The three main stars form a large reversed L, to the west of the bright orange star Arcturus in Bootes. However, they are too faint to identify in the city's glow. Instead, extend your right arm with hand spread, the tip of your little finger on Arcturus. Just to the left of your thumb, you should be able to see a sprinkling of faint stars. (The darker the sky the better.) With binoculars, you will see a beautiful wide cluster of stars, with a suggestion of a V shape. This has a special name – Melotte 111.

These represent the tresses of amber hair sacrificed to Venus, the goddess of Love, by Berenice, wife of Pharaoh Ptolemy Soter III. He had gone to war and Berenice offered her precious locks, her crowning glory, in sacrifice for his safe return.

But when Ptolemy returned and went to the temple to see his wife's lovely tresses, they had been stolen. The priests were saved from the sword by the Court Astrologer who pointed to this cluster of stars and announced the gods had taken Berenice's hair and placed it in the sky for all to admire.

The cluster is visible to the naked eye as, in a poet's words, "curious twinkling, as if gossamers spangled with dew drops were entangled there."

All together now... ahhh!

5. Carina – It's In Your Stars

for 15th May 2007

What with amazing discoveries being made regularly these days, astronomers are becoming harder to impress. But this explosion has done it. In the constellation Perseus, in a galaxy 240 million light years away, a rare star 150 times more massive than our Sun blew itself completely to smithereens without leaving a black hole behind, as theory says it should. Over 100 times brighter than a normal supernova for such large stars, it appears to be a completely new type of supernova. It may be the biggest stellar explosion ever observed by astronomers.

What makes it even more interesting to us is that the star that blew up was very similar to a star only 7,500 light years from Earth – Eta Carinae. Astronomers have long been aware that Eta Carinae has a mass of about 120 Suns and is a candidate to go supernovae. This new supernova mechanism suggests it might go sooner than they thought. And when it does, compared to the one in Perseus, we are virtually in Eta Carinae's backyard. It should provide the greatest sky spectacle ever seen by mankind. Something to look forward to, eh?

6. The Crux of the Matter

for 29th May 2007

This week and into June at around 8pm, the Southern Cross, Crux, is flying high, due south and about 60° above the horizon. It's the constellation on our national flag, but we often take it for granted. There's more to Crux than just five stars.

The bottom star, Alpha, is in fact a sparkling double star easily split by a small telescope. A fainter companion can be seen in binoculars.

Just to the left and below the left hand star, Beta, there is a faint star called Kappa Crucis, visible to the naked eye as a 4th magnitude star but binoculars and telescopes reveal it to be an arrow-head shaped cluster called The Jewel Box. This is one of the most beautiful telescope clusters in the sky.

Then, on a dark clear night with no light pollution, to the left of the Cross is a great dark pear shaped nebula called The Coal Sack. It is a huge dust cloud, almost as big as the Cross, 600 light years away blotting out the Milky Way stars behind it, like a shadow puppet.

Yes, there's more to Crux than meets the naked eye.

7. Crossed Fingers Find South

for 20th May 2008.

If you were lost in the bush or desert at night and only had the stars to guide, would you be able to find South?

One way is to find the Southern Cross and the two Pointer stars. These are the two bright stars that point towards the top of the Cross.

First draw an imaginary line from the top star of the Cross through the bottom star and extend it about five Cross lengths. Then find the mid-point of the line between the two Pointer stars and draw another line at right angles to it. Extend this line until it meets the line from the Cross. (Drawing lines in the sky with fingers of both hands is fun and it amuses the family.)

The point where these two lines (or your fingers) meet in the sky is very close to the South Celestial Pole, so if you drop a line from it straight down to the horizon – that is South. This is true no matter what month or time it is – as long as you can see the Cross and Pointers.

(WATCH THIS SPACE FOR FUTURE MAY NIGHTS ARTICLES)
