

Heavens Above - A Chronicle - 11 - June 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 May and July at later or earlier times respectively.

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1. Diamonds in the Sky

for 23rd June 1999

At this time of the year, the Southern Cross is due south and almost directly overhead. You can't miss it.

If you have a pair of binoculars, or a small telescope, there is a beautiful object to be seen a fifth of a moon diameter and about "8 o'clock" from the left star of the Cross (Beta Crucis).

To the naked eye, it appears as a very faint and fuzzy 4th magnitude star. But through binoculars we can see a small collection of stars that has been variously described as 'an arrow head', a 'wedge' or (my favourite) a 'capital A'.

Astronomers generally agree, in their more romantic moments, that this star cluster ranks amongst the most beautiful objects in the southern Milky Way and is one of the finest examples of what are called 'open clusters.'

It is 'The Jewel Box.'

Even through a small telescope, we are treated to an assortment of white, blue and red giant stars, looking every bit like a handful of jewels scattered over a black velvet cloth. Hence the name.

Some of these stars are among the most luminous known in our galaxy. Right in the middle of the A's cross bar is a lovely red supergiant, over 80,000 times more luminous than our Sun.

The Jewel Box is always very popular at public star nights for although it is clearly visible in binoculars from your back yard, a telescope under low power (say 50x magnification) will show the beautiful individual stars in their vivid jewel-like colours.

The 50 odd stars in the cluster are spread across a distance of about 25 light years, but these jewels are safe from burglars. They are over 7,500 light years away. Too far even for light fingers.

2. The Two Crowns

for 18th June 2002

Everyone has a fascination with crowns (except Republicans, possibly). Just as well, as there are two stellar crowns visible this month and through to August at 'family friendly' hours around 8pm.

Though called 'crowns' they actually look more like circlets, the kind Roman emperors wore.

Corona Borealis (the Northern Crown) is found low in the north-east to the east of the bright orange star Arcturus, with the crown's open end facing east. If Sydney would turn off its city lights, it could be seen better. This crown of seven faint stars (it has a brighter star in the middle) is a bit bigger than the Southern Cross and represents the crown worn by Bacchus's bride, Ariadne. He was so happy, he threw it into the sky to celebrate (well, he was Bacchus, and god of the festivity and wine) and it didn't come down. The story doesn't record Mrs Bacchus's feelings about this.

The other crown, Corona Australis (the Southern Crown) can be more easily spotted to the south-east, tucked in beneath the base of the Teapot (Sagittarius) and facing upwards towards Scorpius's tail. This crown is more an arc than a semi-circle. Bacchus also put this crown (or wreath) in the sky to celebrate the rescue of his dead mother from Hades. (Did a lot of celebrating, that Bacchus.) Though its stars are fairly faint, this circlet is higher in the dark sky and is quite distinct.

So why not crown your evening with a peek.

3. Galaxies Galore

for 10th June 2003

I'd like to share a personal viewing experience from Saturday 31st May. It follows from my little romance story of Coma Berenices. I was with my astronomical society at our dark site south of Berrima, the sky was beautifully clear and dark, faint nebulae were visible to the naked eye, and we were being treated to a meteor shower of about one every 15 minutes. A glorious night to be under the stars.

The Coma star cluster (Berenice's tresses) was plainly visible in the sky, and I set out to find and identify a collection of galaxies that occupied the area immediately above the cluster, bordering on the constellation Virgo. The Virgo cluster is huge, containing over 3,000 galaxies averaging a distance of about 55 million light years.

I was using my 9 ¼" telescope and so had ample opportunity to capture these faint objects in my eyepiece. All I needed to do was point the scope in the right direction. Easy...hah! However, with perseverance, a good star chart, and the assistance of a knowledgeable friend, I was eventually able to 'nail' my first Coma galaxy, a beautiful edge-on spiral. From there I hopped from one galaxy to another, enjoying a mixture of face-on and edge-on spirals plus some elliptical galaxies. All in all, I identified 12 galaxies, each over 50 million light years away.

It may have been freezing cold, but I didn't notice. I reckoned that I had seen the collective light of over 3,000 billion stars that night! What a buzz. Sure beats television.

4. A Sting in the Tail

for 24th June 2003

This time of the year once again brings to us one of the great constellations – Scorpius - the Scorpion. (Note: Not Scorpio – that's its astrology name and we won't go there.) It is a huge constellation and very obvious to find. I love Scorpius as it has so many interesting objects to observe, even with humble binoculars.

Go out around 8pm and in case you haven't already found it, look north-east. You'll see it lying on its side, with the head to the north, the bright orange-red star Antares to the south of the head, then the long curving sweep of its spine up and around further to the south, tipped with a very nasty barbed tail.

Scorpius lies within a very star rich area of the Milky Way, particularly the bend of its spine and the sting. If you have a pair of binoculars, it's well worth "cruising down the scorpion," enjoying the various star fields and clusters. In particular, there are two naked eye and binocular star clusters called M6 (The Butterfly) and M7 (the Christmas Tree) hanging below and to the left of the tail's barb.

Move back along to the top bend in the spine and enjoy NGC 6231, a complex collection of clusters and star strings. Very pretty in binoculars with lots of patterns. Then go to Antares and the star immediately to its north. Just above their halfway point, you will see a distinct hazy ball of light. That's M4, a beautiful globular cluster 7,000 light years away.

All that and more in one viewing. You'll be hooked.

5. Stars on the Hoof

for 15th June 2004

One of my favourite constellations, Centaurus, is cantering by this month. This is a star gazer's delight in both binoculars and telescope. It is easily found. Just face due south, look up about 60° above the horizon and find the Southern Cross. Centaurus is that group of stars to the left, right and above the Cross.

I love the mythological story about Chiron, the wise and kindly Centaur (half man, half horse) who tutored many of the Greek heroes and gods in the arts and medicine, gave up his immortality to free the Titan Prometheus, and tragically died from a poison arrow accidentally fired by his pupil Hercules.

But I love its stars even more. The two Pointers, Alpha (the nearest star to our Sun, at 4.3 light years) and Beta Centauri form the centaur's front hooves, while one hind hoof is to the west of Crux. The torso, head and arms are in the mass of stars above and to the north of the Cross, but you need a map to trace them out.

In the middle of the torso, visible as a fuzzy 4th magnitude star, is the globular cluster, Omega Centauri, superb in any binoculars, and a knock out in a telescope. You can find it by tracing a line upwards from the Pointer star closest to the Cross (Beta) parallel to the Cross till it meets a fainter star (Epsilon Centauri), then continue the line the same distance. Once in the general area, you can't miss it. It looks like a fuzzy blob.

So why not grab your binoculars, trot outside and take a look?

6. A Singular Globular

for 27th June 2006

At this time of the year my all-time favourite astronomical object is up high in the sky for all to see. On a moonless night, like all this week, to the naked eye it is visible as a faint furry 4th magnitude star, while in a telescope it is a jaw-dropping sight. In binoculars, it is a 'wow!' object. I'm talking about the stunning globular cluster known as Omega Centauri, in the constellation Centaurus.

It is easy to find. First locate the Southern Cross high to the south. To its left are the two Pointer stars. Find the Pointer (Beta Centauri) closest to the Cross, move up about one Cross length parallel to the Cross to a fainter star, then on about the same distance again. You will find another faint fuzzy star. That's it. In binoculars you will see a beautiful sight – a bright glowing ball of light, like a ball of fairy floss, or like a street floodlight seen through a heavy mist.

This globular cluster with over 3 million of the oldest stars in the universe is 17,000 light years away and is the biggest and best of its class. There are over 150 of these 'globes' in a halo about our Milky Way galaxy but this is the largest known. This is something our friends in the northern hemisphere have to travel 'Down Under' to see. You'll see why it's my favourite.

7. Transit of Venus

for 1st June 2004

An event that had tremendous significance in the science of astronomy and, by serendipity, led to the discovery and ultimate colonisation of Australia, will be played out on Tuesday, 8th June 2004. (Obviously, that's history now.) An event that no person living today had seen. The transit of Venus across the face of the Sun. The next transit will be in 2012, then 2117.

The last transit was in 1882, another was 8 years before in 1874. The one before that was in 1769. It was that transit that brought Captain James Cook to the South Pacific, after which he discovered New Zealand and Australia's east coast.

Why did Cook come all the way from England to observe the inner planet move across the Sun's face? It was part of an international astronomical effort to measure the distance from the Earth to Venus. From this, they could for the first time calculate the astronomical holy grail, the distance from the Earth to the Sun.

Today, we know that distance to the nearest centimeter by bouncing radar off Venus. Not as romantic.

In Sydney, Venus will make first contact with the Sun's edge at 3:07pm and leave the Sun's opposite edge over 6 hours later. That is, it will still be in transit when our Sun sets.

WARNING: The briefest of glance at the Sun through a telescope or binoculars without very special filters WILL cause instant and permanent blindness. The safest way to watch this historical event is on the evening news on TV.

FOOTNOTE: As the above says, the next transit will take place in 2012, only 3 years away. Keep your eyes open for information about it then.

8. Have Cup, Will Fly

for 9th June 2009

There seem to have been a lot of flying saucers in the skies over Macarthur these past months, even years, according to reports. Now I've always found it exceeding strange that amateur astronomers, like the sixty or so members of Macarthur Astronomical Society plus those in many other similar societies who spend a great deal of their time looking at the sky to all hours in the morning and know a strange light when they see one never see any UFOs. Not one. It's a puzzle.

However, what we lack in seeing flying saucers, we make up for with seeing a flying cup, not to mention a flying tea pot.

The well known Tea Pot aka Sagittarius the Archer is flying high in the east these nights, tucked under the stinging Scorpius. The other piece of flying kitchen ware is not so well known. Crater, the Cup is up high in the north-west, soaring above the belly of Leo the Lion. Crater is a faint and obscure constellation representing Apollo's cup from which he sipped after battle. It has no saucer. That's flying about Macarthur, reportedly.

9. My, What Big Teeth You Have

for 23rd June 2009

Little Red Riding Hood beware. There's a beast with big teeth lurking in the sky's forest these nights. It's Lupus the Wolf, a fairly large constellation of 2nd and 3rd magnitude stars in the rich Milky Way star fields but often overlooked because of its more attractive neighbours, Scorpius, Sagittarius and Centaurus.

Actually, this wolf's no real danger now as he is stuck on the end of Centaurus's spear ready to be offered as a sacrifice on the Olympic gods' altar, the constellation Ara found beneath Lupus. It seems Greek and Roman mythology only saw this constellation as an unspecified wild animal, its description as a wolf coming much later in the Renaissance. Still, teeth are teeth.

Lupus is located between the constellations Scorpius and Centaurus, the latter a large sprawling group of stars found above the Pointers (which are the Centaur's front hooves) and the Southern Cross. Its stars seem to mingle with the torso and arms of the centaur, stuck as it as on the end of the centaur's spear. It's rewarding to view in binoculars and small telescopes. But watch those teeth.

(WATCH THIS SPACE FOR FUTURE JUNE NIGHTS ARTICLES)