MACARTHUR ASTRONOMICAL SOCIETY Inc.

Journal

PRIME FOCUS

Volume 10 Issue 5 June 2005

President's Report

Last Month

Our new video and sound unit certainly got a good work out at last month's meeting, Zane's photography came up a treat. As you know Zane Hammond was our guest on the night and his photography was just amazing, especially that shot of Omega Centauri. It was a great night and well received by all.

The Magellan Observatory visit, Mt Carmel School star night and the Observatory public night will no doubt be on the agenda for discussion tonight. I say that as this report is typed well in advance due to Bob Bee's work commitments. Thanks Bob for arranging this month's journal.

This month our guest speaker is Bernard Kornfield who will be speaking about those fascinating objects, Globular Clusters.

In the Future

I am very happy to confirm that our guest speaker in November will be Rev. Chris Toohey. It's all happening!

Stars On Parade

We have had a good run with the media outlets lately with both myself and Lloyd appearing in the newspapers, also we have had quotations published by John Rombi and myself. I was also fortunate enough to have penned a follow up article in the district reporter, re the The Oaks public night. Of course Bob has the *Heavens Above!* articles in the Chronicle newspaper, and David Everett, Dick's son has a radio spot on Friday mornings on C91.3, as well as the *In Macarthur* magazine.

It's important for us to have these representations for future events and announcements we may make on behalf of the society, well done to all.

ACTIVITIES

02/07/05 The Forest
09/07/05 The Oaks
18/07/05 General Meeting
30/07/05 The Oaks
06/08/05 The Forest
(Special students' night)

As always please be aware that changes can happen so please check in with John Rombi or myself on 0410 445 041.

Thanks everyone until next time

Regards
Noel Sharpe

Young Australian of the Year Blasts Off

If any of you remember a young astronomer surprising the nation (including *moi*) when he was named "Young Australian of the Year" back a few years ago (OK... I forget the exact year), then that young (and very bright) young man has made the astronomical news.
Our Bryan Gaensler, now a professor of Astronomy at the Harvard University has detected the 'brightest explosion in the history of astronomy'.

The blast happened 50,000 light years away on the surface of that bizarrest of objects, a magnetar. In a period of 0.2 seconds, it released an equivalent energy of 200,000 years of our Sun's starlight. We wouldn't have seen it, however, as most of it was in gamma rays.

Com'n Aussie. Onya Bryan.

Stars Trump Clouds RB

The following doggerel tells the tale of last week's public night at Dudley Chesham Sports Ground. As any astronomer will tell you, clouds are so unpredictable.

There weren't too many folks, last week at the Oaks
Though our members and ten telescopes were there,
But the arvo's clouds were looming, and the evening's hopes quite dooming,
So the crowds stayed home to watch the TV fare.

As fickle fate would have it, when the Sun set, like a rabbit
From a hat the stars and planets all came out.
The clouds dissolved – amazing, the Milky Way was blazing
With its stars and clusters, nebulae spread out.

Some couples, mums and mites, arrived to see the sights,
The lines were short as telescopes were many.
Jupiter made them drool, and Saturn's rings were 'cool',
And Jewel Box cluster shone as good as any.

The lesson to be learned, from this experience, as it turned
Into a night that provided stars galore,
Is to ignore the cloudy day, take a punt and drive away
To the Oaks and see what evening has in store. ■

Wot IC This Month
June 20 – 17 July 2005

Overhead at 8.00 pm
Jupiter is bright to the northwest followed by Arcturus, the bull in Ophiuchus and Lyra, the Harp Star coming up from the northeast. Scorpius is proudly overhead followed by Sagittarius in his milky cloud.
In the south the Cross and Centaurus reign supreme with the Peacock, the Crown and the Scorpion's tail dominating all.

The Moon Diary
22/6 Full Moon
29/6 Last Quarter
06/7 New Moon
15/7 First Quarter

Evening Sky Planets
Mercury trails the Sun this week rising after 8 am in Gemini and setting 45 mins after the Sunset. If you have a flat western horizon you will see it below bright Venus in the twilight glow rising higher and setting a little later each night for two weeks. The next four weeks are the best time to see Mercury until October

Joining **Venus** also in Gemini on the 28th June, the two will stay together in the early evening till the middle of July. Both will pass through the Beehive cluster on 3rd – 4th July respectively, before Mercury plunges to the Sun again to return at sunrise in a couple of months.

Saturn also in Gemini will partner Venus and Mercury during this time as the gas giant slowly descends into the murk of the atmosphere, setting round 7 pm. It will be behind the Sun on 24th July, before rising in the morning sunrise in August.

Jupiter is already high in the sky having risen in Virgo during daylight. It will meet up with a first quarter Moon on 13th July and set round midnight near the star 'Porrima' (gamma γ Virginis).

Neptune comes next at 9 pm, 6 pm in July, still in Capricornus below and to the right of theta Capricorni. Never getting brighter than magnitude 7.8 you will have to search and maybe have Ned Pastor beside you while looking.

Uranus rises in Aquarius as it has for the last year round 11 pm and will set before midday the following day. Located 2° left and slightly above lamda (λ) Aquarii it will remain in place for the month of June before heading back to the west in reverse gear.

Mars rises in Pisces a little after midnight and will be visible till sunrise all night. On 29th June a last quarter Moon will be 5° above about 2 am. Mars will grow brighter and larger in size from now as it approaches opposition in November and our best views since 2003.

Comets
9P Tempel is moving southeast through Virgo and is best viewed in the early evening. Expected to be 9th magnitude the comet may brighten to 5 when the Deep Impact probe slams into it on 4th July. "Look up, the sky is falling in!!"

Portraits in The Sky

Libra – The Scales or "The Balance"

was so named because some four thousand years ago, the sun passed through this constellation at the autumnal equinox and the hour s of daylight and darkness were equal. As a symbol for equality, the constellation came to represent Justice in several cultures.

However, the Greeks had included it as part of Scorpius, which lies just to the east. The stars that make up Libra were the Claws of the Scorpion.

The Greeks also linked the ideas of equinoctial division and agriculture in another story that gives us the constellation's other name 'The Golden Chariot of Pluto'.

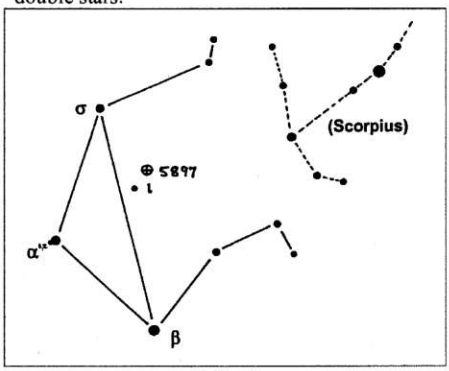
The ruler of the Underworld was named Pluto (aka Hades) who was a brother of Zeus and of Poseidon. Pluto's Golden Chariot was used whenever he wished to visit the Upper world.
Deep beneath the earth, he owned all its mineral riches. He was usually ignorant of the happenings of the Upper world, only emerging from his dark kingdom to seduce beautiful nymphs. While these relationships did not last, all changed when he saw Persephone, the daughter of Demeter and Zeus. Demeter was the sister of Zeus and Pluto (Hades), and one of the most important of goddesses responsible for Agriculture, and all growing things.

Pluto, smitten by the beauty of Persephone, wanted her for his own and took her by force down to his kingdom, where she became Queen of the Underworld.

Demeter her mother was so distraught about the loss of her daughter that she prevented any seeds from sprouting. A vast drought spread throughout the Upper world. Zeus became vexed, because his dinner did not appear on the table, so he forced his brother Pluto to give up Persephone, so that the Upper world could again become green and lush. If Persephone hasn't eaten anything since her arrival Pluto says, he will agree. Alas, she has consumed six pomegranate seeds, so Pluto claims she must stay.

Zeus will have none of this, and ruled that she must divide her time between the Upper and the Under world. Thus every year the earth becomes a cold and forbidding place, until Persephone is allowed to emerge from the Underworld, bringing spring with her. For us in the Southern hemisphere she walks really slow as it takes another 3 months for our spring to arrive.

The stars in Libra are fairly dim, except for 2nd mag. alpha^2 and beta. There are some fine double stars.



(Libra)

Alpha^2 and **alpha^1 Librae** also known as Zubenelgenubi, meaning "Southern Claw", form a very wide double 2.9, 5.3; with colour

contrast of yellow and pale blue, separation 231".

Beta (β) Librae is called Zubeneschamali, "The Northern Claw". Some have described this white star as green.

Iota (ι)Librae is a multiple system: **Iota^{1a}** is a rapid binary with a period of 22.35 years, travelling in a retrograde motion. **Iota^{1B}** is a fixed wide companion: 4.5, 9.5, separation 58.6".

Struve 1962 is a fixed pair of equal stars: 6.5, 6.6, separation 11.9".

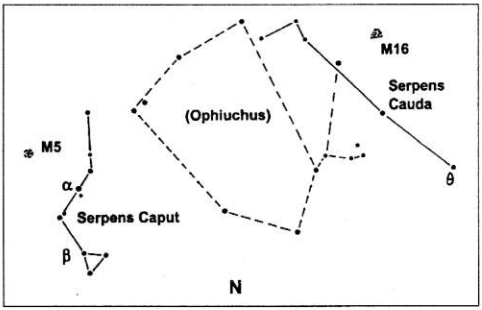
The only deep sky object is a loose globular cluster of faint stars - **NGC 5897**, 2° south-east of *Iota Librae*, thought to be about 50,000 light years away. A large telescope will give a better impression.

Going directly north from Libra we find The Serpent.

Serpens – The Serpent

is being grasped in the hands of Ophiuchus the Serpent Holder. The constellation wraps around Ophiuchus, and is divided into two parts: Serpens Caput (the head) and Serpens Cauda (the tail).

The constellation is large but has few features of interest. There are a couple of spectacularly good Messier objects and some very nice binaries. The brightest star, ***Alpha Serpentis***, is called ***Unukalhai***, meaning "Neck of the Snake". It is 67 light years away, and is approximately ten times the size of our Sun.



(Serpens)

Double stars:

Serpens has three visual binaries, two of which are very attractive, and one that will test your observing skills.

Beta Serpentis (Struve 1970) is a wide visual yet difficult to observe due to the brightness of the primary compared to the faint companion: 3.0, 9.2, separation 30.8".

Theta (θ) Serpentis (Struve 2417) is a wonderful binary of two white stars: 4.0, 4.2, 22.2".

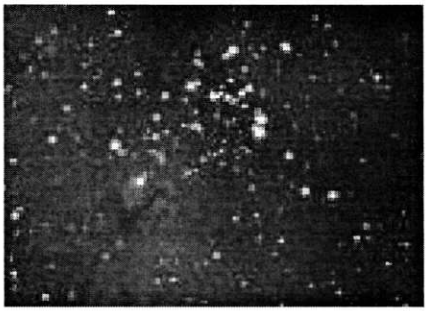
Struve 2375 is a superb pair: 6.2, 6.6, 2.4".

Deep Sky Objects:

There are two Messier objects in Serpens: M5 and M16; the first is found in the "head" of the serpent, the second in the "tail".

M5

M5 (NGC 5904) is a spectacular globular cluster, containing a half a million stars. The cluster is quite compact and rather bright; it is about 25,000 light years away, and ten billion years old. The cluster is found 8° SW of alpha (α) Serpentis.

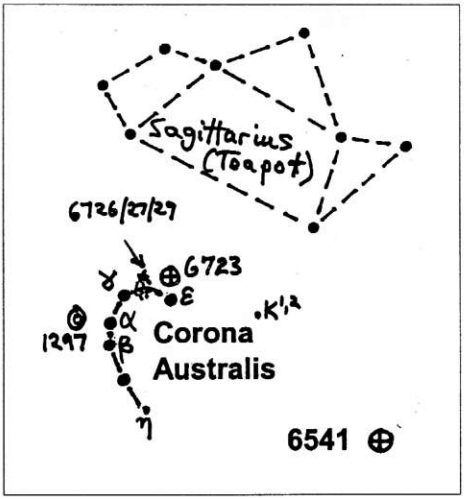


M16 (NGC 6611), "The Eagle Nebula", is a remarkable open star cluster surrounded by a huge nebula, very luminous with dark streaks of dust, which is a nursery of newly forming stars. Best seen in large scopes with a nebula filter the cluster is 15° south of *Eta (η) Serpentis*, but an easier way is to star hop 2.5° north from M17 The Omega Nebula (or Swan Nebula), in Sagittarius.

Turning our back on the north we seek a half circle of stars under Sagittarius called:

CORONA AUSTRALIS –
"The Southern Crown"

Corona Australis is a small compact constellation nestled between Sagittarius and Scorpius, just east of Scorpion's stinger. The constellation is old, and is said to be the crown worn by the centaur Sagittarius. Some people know it as "Corona Sagittarii".



Though only 4.1 magnitude the **alpha star** is called Alfecca Meridiana. This is a deliberate play on words to complement "Alphecca - alpha Corona Borealis" which is in the northern sky at a similar time. The word 'Meridiana' refers to noon-time and from the northern hemisphere to see the meridian at noon you must look south. So we have the crown in the south! Easy isn't it!

Alfecca Meridiana is a common hydrogen fusing dwarf, more than twice the size of our Sun. However it has a fast spin; making a full rotation in only 18 hours compared to the Sun's 25 days.

The most interesting deep sky area lies between Avior (epsilon) and gamma.

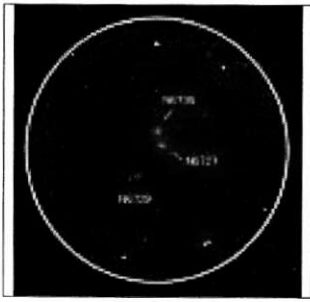
Double stars in CrA:
Kappa² and kappa¹ *CrA* form a gorgeous fixed double. Kappa² is the primary: 5.9, 6.6; separation an easy 21.4".

BSO 14 are two nearly equal blue stars 6.6, 6.8 and 18" separation in between epsilon (Avior) and gamma.

Deep Sky Objects:
NGC 6541 is a globular cluster, quite large and bright, about 15,000 light years away. Located 30' east of theta (θ) Sco. and nearly midway to theta CrA.

NGC 6723 is another GC within the same low power field of view as epsilon (ε) CrA, 30' to the north east.

The nebulous region is **NGC 6726/6727,** which form a figure eight. Just to the SE is **NGC 6729**, which is much fainter, containing R CrA, an irregular variable that goes from 9.7 to about 12. As the star brightens, so does the surrounding nebula. The easiest way of finding the nebulosity is to drop 7.5° south of zeta (ζ) Sagittarii.



This image shows 6726 at the top, 6727 immediately below it, and 6729 to the lower left.

IC 1297 is a planetary nebula with a 7" inner disk situated east of beta 1.5°. Larger scopes will show a disk out to 22" and maybe the 15th mag central star.

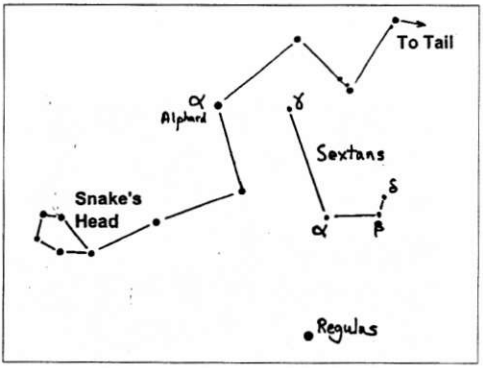
So get your scope "balanced" and don't get so dazzled by "the crown" that you forget about "the Serpent".

Good seeing IC

More Observations from the Oaks on 30th April 2005

On the night that I found M87, NGC6114 and NGC3242 (Ghost of Jupiter), I also had the pleasure of tracking down the **Spindle Galaxy, NGC3115**, in Sextans.

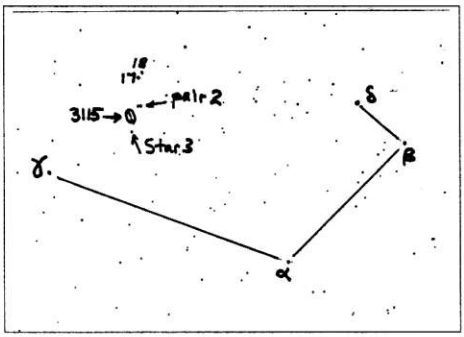
Let's face it – Sextans is a poor excuse of a constellation. On this particularly dark night, even knowing exactly where to look, I could hardly see its stars, the brightest being mag. 4.5. The best way I can describe finding its faint fat hockey stick shape is to imagine a triangle with Regulus (α Leonis) and Alphard (α Hydrae) at two points and Sextans (in the direction of Crater) at the other point. See the sketch following.



Now we track down the Spindle. This is how I did it. You may find a better way.

The trick is to find a close pair of 6th mag. Stars named 17 and 18 Sextantis. They are found in your finderscope 4.5° to the east of γ Sextantis. They are a distinct pair of near identical magnitude stars and you shouldn't miss them.

Then move down from 17/18 about 1° and you'll see an even closer and slightly fainter pair of stars (I show them as 'pair 2' on the sketch.) The same distance further on is another single star ('star 3').



Once you have located them, the Spindle Galaxy is located midway between 'pair 2' and 'star 3'. It is a distinctive elongated smudge of light.

I must admit it was quite exciting to find this smudge of light in my eyepiece. Initially I used my 45mm eyepiece, giving x52 magnification. My book told me it was a 9th magnitude elliptical galaxy 14 million light years away. Imagine!

The image above is a reasonable likeness of what I saw, but maybe a bit brighter.

I found that it responded well to increased magnification. I changed my eyepiece progressively to 32mm (x73) then 15mm (x156). Each time, as the image grew, I didn't lose any significant brightness.

What gave me the greatest satisfaction was having done the 'homework' – that is use a Star Atlas (my Bobroff got its first real workout that night) or a computer star chart to identify hopping stars (preferably with distinctive patterns to see in the finderscope or your lowest power eyepiece) – then to locate those 'hopping stars' in your instrument.

I admit I didn't get it first try. I found 17 & 18 easy enough – they are visible in binoculars – but I had to have a few goes at identifying the 'pair 2' and the 'star 3' beyond them. Once located, however, the Spindle Galaxy was there in my eyepiece, I just had to recognise it as not a smudge in the optics. Then to try and get it dead in the centre of the field of view (FoV) so that when I switched to higher mag, it didn't pop out of view.

Altogether a very enjoyable experience. Why not try it? At that stage, the moon rose and washed the faint fuzzies out. Like most of them others, I packed up and went home.

RB