

This year there will be several interesting astronomical events to look forward to, including occultations (eclipses) of Saturn and Jupiter by the moon, a very partial eclipse of the Sun and the possibility of a meteor storm event when the Leonids arrive in November. Further details can be found in your handbook and look out for information in your newsletters as the time arises.

### **Highlights in the Sky**

Venus has gone through inferior conjunction to reappear in the morning sky and Mercury will join it briefly in the morning twilight this month. Venus will remain in the morning sky until October.

Mars and Jupiter are rapidly sinking towards the western horizon and will be conjunction on January 21st (check your handbook for details). We will lose both planets in the evening sky by the end of February. Saturn is in the North West at the end of twilight and will soon follow Mars and Jupiter. By the end of March there will be no planets visible in the evening sky!

Orion is now well above the horizon at the end of twilight. At his knee is the big dog Canis Major, which has Sirius, the brightest star in the sky (except the Sun), at his shoulder. Nearby to the South is Canopus, the second brightest star in the sky. Summer evenings are also a good time to brush the dust off your planisphere and explore Taurus, the Pleiades and the Large and Small Magellanic Clouds.

### **SOME VERY IMPORTANT BUSINESS**

**All volunteers from the 1996 intake will need to complete a new volunteer agreement form** as the old expired on 31st december 1997. The observatory opted for a short duration agreement given our relative inexperience with volunteer programmes. New forms are available in the back section of the volunteer Register File that is kept near the noticeboard. You can make the expiry date anything you think is appropriate but the end of a calendar or financial year seems most appropriate, eg. 30/6/98, 31/12/98, 30/6/99 ... up to 31/12/2002, about 5 years hence. Jamie Biggs will complete your forms and a copy will be pinned to the notice board. **Please take the time to complete these forms as it serves to reiterate and reinforce our commitment to each other.**

### **Sun & Stars Festival**

The Sun & Stars Festival will be held at Yanchep National Park on Sunday 1st March this year, during the March long weekend. Six volunteers are needed to assist the Observatory at various times during the day, from noon to 10 pm. Last year's event was very popular with about 1000 people attending. This year there is an added bonus - and eclipse of Saturn by the Moon, starting at 6 pm. All volunteers helping will get free park entry for a carload of people. Please register your interest with Jamie Biggs by 5pm Tuesday 24th February.

### **Volunteer Rewards**

Some Night Tour Volunteers have accumulated sufficient hours to be eligible for the rewards outlined in the training course. Full details should be known by 31/1/98 and a list will be published in the next newsletter. Thanks to all volunteers for the long hours you have donated in order to assist the Observatory - Jamie Biggs.

### **Practice Nights**

There are only two practice nights left this year in, on 23/2/98 and 23/3/98. There will be no practice night at the end of January or April.

## Observatory News

- Astronomer Andrew Williams was formally notified last month that he had been granted a doctorate in philosophy by the University of Western Australia. Well done and congratulations Dr Andrew Williams!
- At the time this newsletter is being prepared a supernova candidate has been discovered, on the morning of January 7th. Further observations of the spectra is required to confirm if it is a supernova and what class of supernova it may be. It is located in IC2627 at Right Ascension 11h 09m and Declination  $-23^{\circ} 44'$  in the constellation of Hydra (in between the Southern Cross and Regulus in Leo).

## The Dog Star

Sirius, the Dog Star, is well known for being the brightest star in the sky, at magnitude -1.46. This is brighter than most of the planets, except Venus, Jupiter and Mars at a close opposition. Sirius makes the shoulder of the constellation of Canis Major, the big dog, which can be seen well up in the Eastern sky at the end of evening twilight.

Sirius means "Scorching" as a few thousand years ago it was close to the Sun during the Northern hemisphere's Summer. It was thought that the combined heat of the Sun and Sirius made the days so hot. It was also an important star to the ancient Egyptians, who looked for it's heliacal rising to herald the start of the flooding of the Nile. A heliacal rising is the first time a star is seen in the morning sky after it has passed behind the Sun.

To modern day astronomers Sirius is a hot, white star, 9 light years away. It is interesting to compare Sirius with alpha Centauri, which is only half that distance away but less bright, at magnitude -0.26. Sirius is also double star. It's companion, Sirius B, is a white dwarf near the end of it's life and the matter inside this star has been compressed to a density 100 000 times that of water. It orbits Sirius every 50 years and is at present so close to the primary star to be observed visually.

*Below is a repeat of some interesting information from the first volunteer newsletter. If you have a topic or question you would like to see covered, particularly if one you get asked on night tours a lot, drop the editor a line via the Observatory.*

## The Colour of Stars and Their Temperature

Alpha Centauri is a binary (double) star. The majority of stars in our galaxy are binary stars. It is easy to see that both components of this pair are yellow stars, like our own sun.

The colour of a star is an indication of it's temperature. White is very hot, yellow is warm and red is cool. This is similar to heating and cooling an iron bar. When it is extremely hot it will glow white, changing colour as it cools down to a dull red and eventually black when it is cold. Sirius, also a binary star, is an example of a hot white star. Antares, another binary, and Betelgeuse are cool red stars.

## Magnification in a Telescope

There's always a visitor who asks "What magnification is that?". Unless you have a calculator handy it can be hard to do the sums in your head. The formula is simple though - it's the focal length of the telescope divided by the focal length of the eyepiece being used. If you have a 20mm eyepiece in the Calver telescope, which at f/10 has a focal length of 3125mm (10x12.5 inches) the magnification will be roughly 156 times.