MACARTHUR ASTRONOMICAL SOCIETY Inc.

Journal

PRIME FOCUS

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PRESIDENT'S REPORT

What a great speaker was Andrew James last month, with his talk on planetary nebulae. This month we are equally privileged to have Ralph Buttigieg, the President of the Sydney based British Astronomical Society. Ralph will talk to us about traveling to Mars.

Star Night:
I am hopeful of a large turnout on **August 8th** for our Star Night. This will be a big night organised by UWS in conjunction with MAS. Popular astronomer Seth Shostak from USA will be the special guest speaker, and there will be astronomy stalls and displays. The Star Night is open to the public and will be strongly advertised through the community. A great turn up by MAS members will add to the success of the evening. To be different, it will be held in the Students Barn on the hill. Members are encouraged to bring their telescopes to help show the sky to the public.

Miscellaneous:
Next month it is hoped that we will have another very special guest, but am yet to confirm as I have had difficulty contacting him for a final acknowledgment of him coming.

I would like to especially thank those who came to last months meeting and found the room. Hopefully some of us will take up the challenge of Aurora and Planetary Nebula hunting and let Andrew now of our results.

Many of you would have noticed the new three column format in our Prime Focus Newsletter and Journal. I personally like the change. Keep up the great work Bob, and all those members who contribute with regular articles. This too is greatly appreciated.

Anyone remotely interested in seeing how the race was won on America reaching the Moon, they must see Moonshot. I borrowed it from a friend recently and thought it was superb.

Computer Program:
Also anyone with a computer must somehow procure a copy of The Sky. It is simply the most awesome computer planetarium I have ever used. Not only can it search for many thousands of

stars, nebulae and galaxies in the Universe, but if you are on the Net, you can book time on a telescope and download your results. I have just copied the program onto my system. I will inform you all how easy or difficult the software is to use in the next issue.(Especially for you Pete.)

Supper Helper:
I would dearly love someone to take over the tea and coffee box. Please let me know after the meeting if anyone is interested. It is very difficult for me to bring the library materials along and the tea and coffee, plus organise the evening. Anyone, please, let me know if you can do the supper, thanks.

Phil Ainsworth (President)

[**Supper Helper**: Come on folks. This is your chance to make a significant contribution to our Society. Everyone really enjoys that beverage induced networking after our meetings, but it's too much to expect Phil to do it. How hard is it to bring a box of makings and some foam cups to each meeting? Costs are covered by the Society. Volunteers PLEASE! – Ed]

Latest News.

Andy Thomas has successfully landed and has once again found his Earth legs. It's hoped Dr. Thomas will be coming out to the powerhouse museum in October, more details when confirmed.

Kessler announces officially that they will be launching and testing rockets from Woomera in South Australia. Australia will once again be heading into space.

Apollo 15

On July 26th 1971, Apollo 15 blasted off to the Moon with three Astronauts, Dave Scott, Alfred Worden and James Irwin. This mission was the first to use the Lunar Rover, and gave the Astronauts more time and opportunity to cover more of the lunar terrain.
On July 30th, Scott and Irwin explored the mountain slopes for 18 hours, and during this EVA collected a whopping 78 kgs of soil and rock samples. They also explored the deep gorge of Hadley Rille, but found the going tough with the sides of it too steep, to investigate on foot without having mountain climbing equipment. The Two Astronauts deployed other scientific equipment and reflectors so the Astronomers on Earth could detect the Earth-Moon distance with lasers. The major reason for these reflectors was to tell scientists if the Moon was receding from the Earth. In point of actual fact they have found it is slowly pulling away, and who knows possible the show Space 1999 was right, and the Earth one day will have no Moon.

So he wasn't too lonely and board whilst orbiting the Moon, Astronaut Wordon took some excellent photographs of the Lunar Surface. The CM for once was carried eight scientific experiments. The experiments included mapping and panoramic camera and Spectrometers. To top off the mission the astronauts also deployed a sub-satellite (0.79m), which was designed to measure concentrations of mass in the Moon.

After spending 77 hours on the Moon, the LM lifted off from the surface. During the return journey, Wordon conducted a 38 minute EVA to retrieve the film and data canisters from outside the CM. Apollo 15 splashed down onto the Pacific Ocean on August 7th, 1971. By far the most successful mission so far in the Apollo series.

BOOK REVIEW
Let me just say, this book review was going to be on Stephen Hawking's 'A Brief Moment In History' and 'Basic Quantum Physics'. I had difficulty in reading either book and hence scaled down to a book I have a greater chance of understanding.

Where Are We ?—'A Theory About The Universe', by R.A. Seguram. This is an old Astronomy manual which I purchased at Ingleburn Library for $1. It has some great basic knowledge on Astronomy and is well worth a read, especially for our high school members.
The book explores some interesting theories, and starts off examining Proto-material, then Space & Time followed by an overall concept of how the Universe was born, then finally closes with a chapter on the planets within our solar system.
This manual can be borrowed from the MAS library from next month when it has been processed.

LIBRARY
By the time this article reaches the pages of the Journal I should have a list of library materials which can be borrowed. Please indicate with your name next to the item so I can bring it next month.

Phil Ainsworth ■

WHAT'S TO SEE THIS MONTH

The Planets:

The planets are a bit higgeldy piggeldy this month between MAS meetings. For a detailed account of when to look for what planet, I refer you to the excellent descriptions in **Astronomy '98**, pp45-51.

However, a few of the highlights are:

* On 22nd July, less than and hour before sunrise, Venus will be about 6° north of the thin crescent moon, with Mars below, just above the horizon.

* On 24th July, Neptune is in opposition and visible the entire night. It is mag. 7.8 and its position will be:
20hr 11m 40s, -19° 38' 28".

* On 25th July, in the evening twilight, low on the western horizon you can see an interesting arrangement of Regulus (the 1st mag star in Leo), Mercury and the thin crescent Moon.

* On 3rd August, Uranus is in opposition and visible the entire night. It is mag. 5.7 and its position will be:
20hr 58m 26s, -17° 51' 16".

* On 5th August in the dawn sky, there is a close encounter of Mars with Venus.

* Jupiter is rising from 9pm and earlier in the early part of August. A good time for viewing. Check out its moons. Catch them all on the same side of Jupiter on 22nd July, 28th July, 3rd August and 11th August.

The Constellations:

* Don't forget to catch Hercules and Lupus this month. See the articles in this Issue for details.

* Ophiuchus is also in a great position (just above Hercules to the north). I haven't done an article about Ophiuchus yet, but there are two nice 7th mag globular clusters M10 and M12 which are both visible in binoculars and small scopes. There are also some nice open clusters ideal in binoculars. These are NGC6633 and IC4665.

* Our friend Scorpius is reigning supreme directly overhead. Marvel at Antares (the red supergiant), M6 and M7 open clusters, and M4 and M80 globular clusters.

* And of course, Sagittarius, the Tea pot, is almost directly overhead as Scorpius turns to the west. Sagittarius is like an astronomer's candy store with the Lagoon Nebula (M8), Omega Nebula (M17), Trifid Nebula (M20), M22 (a 5th mag. globular), M23 (an Open), M24 and M25 (open clusters) and M55 (another globular). See my article in Volume 2, Issue 7 (August 97) for more details.

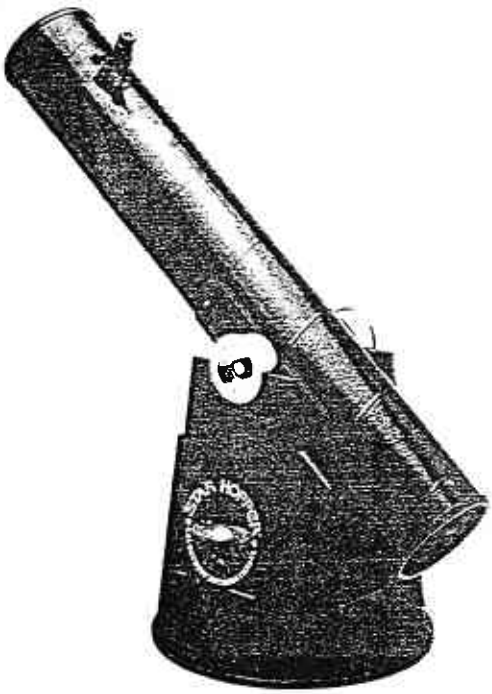
Good Seeing Bob Bee ■

MACDOB: THE SOCIETY'S 'SCOPE

The Committee has appointed Bob Bee 'custodian' of our 150mm MacDob, meaning he will issue and receive the 'scope from those who wish to borrow it. There is no hiring fee for MacDob, but to cover maintenance costs, you are invited to make a voluntary donation consistent with the pleasure that MacDob has given you.

Borrowings are usually from one meeting to the next, but in times of heavy bookings, it may be shorter.
Members are advised that they will be asked to sign a form acknowledging receipt of all the components, and also accepting responsibility for any damage to the 'scope while in their care (other than reasonable wear and tear).

Contact Bob Bee on (02) 46251623 for your loan of MacDob. ■

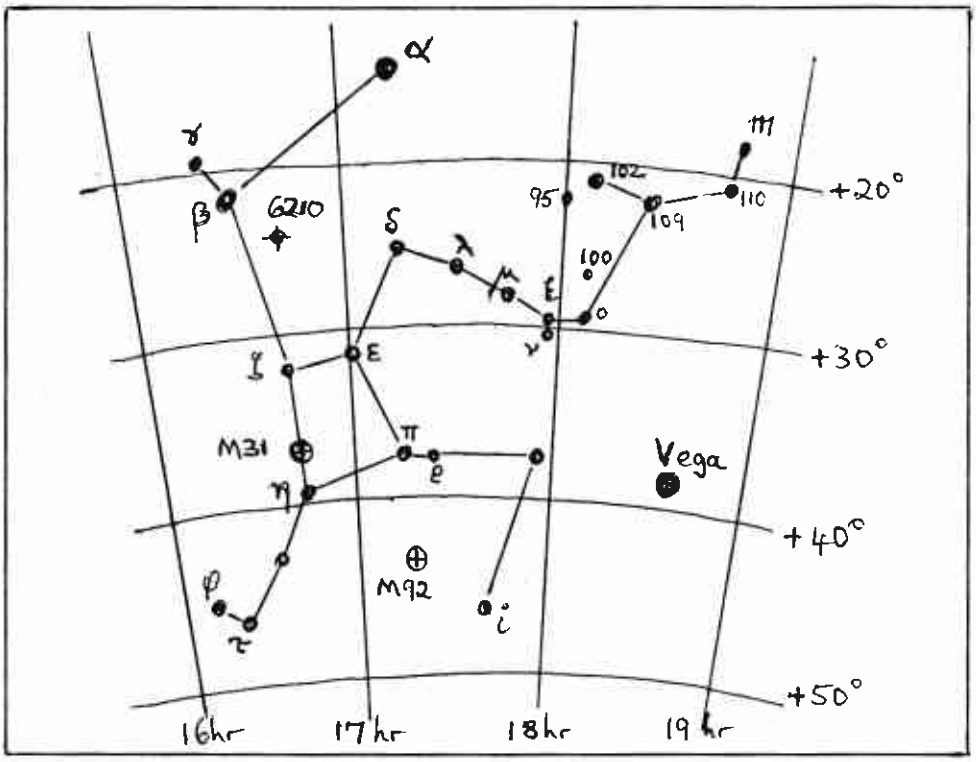


HERCULES

Straight from Channel Ten to you. Actually if you connect the dots correctly (see diagram) it does look like a kneeling man. And like the hero of the legend, the constellation is **huge** (about 45° x 30°).

This time of the year is the best time (for us Sydney types) to see this constellation (at civilised viewing times, 8pm – midnight), especially if you have a good tree and light pollution free northern horizon.

Hercules, like Lupus, is not over-endowed with NGCs (ie nebulae, globulars and clusters – ha ha!) but has stacks of doubles some of which are particularly interesting. Something to try the limit of your apertures on.



α (alpha) Herculis is named Rasalgethi, meaning 'Head of the Kneeler'. Although named α, it's not quite as bright at mag. 3 – 4 (it's a variable) as the β star at mag. 2.8. α Herc. is a very large red giant about 500 l.y. away, and is 600 times the size of our Sun. They don't get much bigger than that. Also, α is a double. Small telescopes should spot its blue-green mag. 5.4 companion which has a period of orbit exceeding 3000 years. (17hr 15m, +14°)

β Herc , named Kornephoros, is the brightest star (2.8 mag.) in Hercules and is a yellow giant, 120 l.y. away. (16hr 30m, +21°)

γ Herc. is a giant 3.8 mag. white star, 160 l.y. away. Small scopes should pick up a wide unrelated companion, at mag. 9.6. (16hr 22m, +19°)

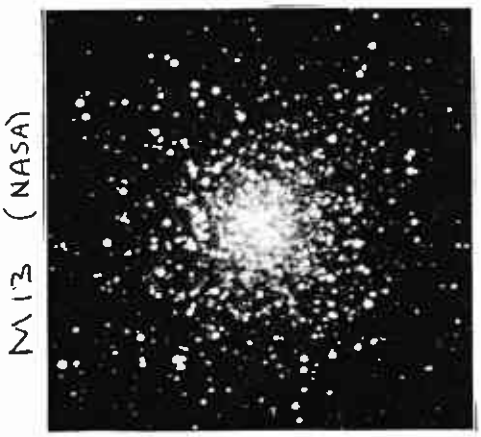
δ Herc. is another unrelated double. The 3.8 mag. blue-white (110 l.y. away) has an 8.2 mag. 'companion' visible in small scopes. (17hr 15m, +25°)

ζ Herc. is relatively close at 32 l.y. (or 10 parsecs, which out of interest, means its apparent magnitude is equal to its absolute magnitude, by definition. ie what you see is what it is.)
ζ has an apparent and absolute mag. of 2.8 (compared to our Sun's absolute mag. of 4.8).
It has a close companion star (orange, mag 5.5) which orbits every 34 years. Due to the plane of their orbit, they appear to get closer then further apart periodically. e.g. in year 2002, they'll be too close for an amateur size telescope to split, but we should be able to split them with a 150mm+ in year 2005.
(16hr 41m, +32°)

95 Herc. is a nice double viewable in small scopes. You'll see silver and gold giants of mag. 5.0 and 5.2 respectively. They are 300 l.y. away. (18hr 01m, +22°)

100 Herc. is another easy one for small scopes, with the strange pairing of two identical stars – same colour (white) and same magnitude (5.9). Like Tweedledum & Tweedledee. The romantics have likened it to a pair of cats eyes in the sky. (18hr 08m, +26°)

But Hercules is not without its NGCs altogether. And the few it has are beauties.



NGC6205 (M13) is the brightest globular cluster visible to the northern hemisphere (and the 3rd best overall after ω Centaurii and 47 Tucanae.) 6th magnitude to the naked eye, it contains over 300,000 stars and is beautiful to behold in binoculars.
Typical of these globulars, it is 23,500 l.y. away (c.f. 17,000 l.y. for ω Centaurii) with a diameter of over 100 l.y. The larger your scope, of course, the more individual stars you can resolve. M13 is a pleasant change from the ubiquitous ω Centaurii. (16hr 42m, +36°)

NGC6341 (M92) is bridesmaid to M13's bride. ie a beauty overlooked because of the slightly greater beauty nearby. Picked up nicely in binoculars, but needs larger aperture than M13 to resolve individual stars because it is slightly smaller and has a more condensed centre. It is 25,500 l.y. away. (17hr 17m, +43°)

NGC6210 would appeal to Andrew James, our guest speaker last month, as it is a planetary nebula, 4,000 l.y. away. Though 9th magnitude, a 75mm+ scope should reveal a blue-green ellipse. Anyone have an O_3 filter handy? (16hr 45m, +24°)

So, that's Hercules.
Stay tune next month for the constellation Xena Warrior Princess ....what? Oh...pity!

Bob Bee ■

AVOIDING PHOTONIC IMPACTION

by Peter Druery

You may think astronomy buffs who peer into their telescopes and eyepieces with a flashlight and perhaps a magnifier to inspect the optical surfaces are overcautious, but smart amateur astronomers routinely check for photonic impaction, one of the most unusual and least understood robbers of image sharpness, brightness and clarity.

This phenomenon can impair any lens, corrector plate or mirror surface, but refractors and Schmidt systems seem to display this most often. Following are some tips to help you protect your current instruments, as well as identify problem equipment on the used market.

Experimenting with horseless carriage headlights Austrian inventor Otto Baroque observed in 1896 that the protective cover glass gradually blackened over time. He attributed this to layers of grime or soot from the carbide lights, but became intrigued when it continued after upgrading to electric lamps.

Microscopic analysis showed that the darkening was caused by photons, the basic components of light, accumulating in the glass from unidirectional light passage. Further work proved that the 8x8 inch panels would lighten if installed backwards on the car and led to his famous *Inverse Square Law*.

The very same thing happens in lenses or other refractive media. Travelling at 300,000 km/sec, photon streams penetrate the front element but begin to decelerate as they hit thicker, grouped glass elements. By the time light reaches the last element, its speed has been cut and the photonic mass reduced by more than 50%. Relatively small apertures, the addition of filters (such as light pollution filters) and other accessories (such as refracting 45° prisms or star diagonals) add to the quandary.

The problem is exacerbated by the so called *Funnel Effect* where a larger front element admits more photons than can be moved through the smaller surface area of the rear elements. Reflectors here are the most susceptible due to the relative efficiency of the larger reflecting surface compared to the modest size of the objective lens in most refractors.

This effect can be captured on photographic film where a round central image can often be seen. This is where photon build-up vignettes the corners, but the result in any telescope, no matter what design or configuration, is always a softer image. There is also loss of effective aperture, and because blue-end spectral photons have greater penetrating power, a cyan colour shift, particularly on slide film.

If you think of the action of light as similar to that of a baseball...

Another recently discovered problem concerns the exposure of your telescopes and eyepieces to different types of illumination, and this directly affects the life expectancy of your instruments. Spherical solar photons, for example, pass easily through optical glass, whereas distended tungsten photons (from ordinary light bulbs) cause a moderate amount of impaction, and icicle shaped photons from fluorescent light sources lodge easily. If you think of the action of light as similar to that of a baseball, it will be easy to visualise that a bounced photon loses speed with each deflection and that diffuse low-level illumination therefore takes its toll sooner.

Photon dynamics have been understood even by lay people; during a photographic portrait session, Ghandi demanded that photographer Margaret Bourke-White use only natural light when taking his picture. Contrary to popular belief, the Mahatma's objection was not dictated by cosmic principle, but rather by his heightened sensitivity to nature and the desire to avoid a barrage of ragged photons to

his minimally clothed body (electronic flash photons are incredibly sharp).

Some Techniques:

Here are a few techniques to help retard impaction in new telescopes, eyepieces or both, and restore old or carelessly treated instruments:

* Outfit your telescope with a front cap, remove it just before viewing an object and replace it immediately afterwards. Don't delay and leave your scope exposed.

* An extensive hood over the objective (much like a dew cap) prevents stray photons from striking the front of the lens or corrector plate at a steep angle and imbedding in the soft coating. I've found aluminium foil seems to work well. Open Newtonian reflectors are helpless here.

* For complete protection when photographing for long periods, block all visible light with a Wratten No. 87 filter and shoot with infrared film.

* A telescope can be de-photonised by mounting it in reverse and exposing the eyepiece rather than the objective to sunlight. (Special Note: remember to be very cautious and safety conscious here). Light passing through in this position will dislodge extant photons, but be careful not to overdo this treatment and end up with reversed impaction.

* Determine the time by multiplying the focal length of your telescope by the aperture and adding the square root of the eyepiece focal length used. Scopes requiring times longer than six hours should be sent to a professional telescope shop for vacuum extraction.

A telescope can be de-photonised by mounting it in reverse...

Remember, your gear is a major investment, it makes sense to take good care of it. Follow the manufacturer's operating and maintenance instructions, have it professionally serviced and don't be fooled by outrageous articles like this one which you often find in many well known magazines and journals. They publish these just to see if anyone is really reading and paying attention.

Keep an eye over your shoulder when observing and have a great time.

Peter Druery ■

OBSERVING NIGHT – 25TH JULY

Itching to get out into the dark and see those stars and NGCs? Well our next night for observing will be held at Cobbity, courtesy of the Macarthur Anglican School on Saturday 25th July.

There is a great sky to be seen there so why not come along. Please note this is NOT an open night – Members only please.

Due to the security provisions at the school grounds, access cannot be obtained willy-nilly. We have to arrange to be there by a certain time (4pm sharp at the Cobbity Rd entrance gate, with a final gate check at 5pm) and be prepared to stay up to 10.30pm. Departures can be arranged 2 hourly after that.

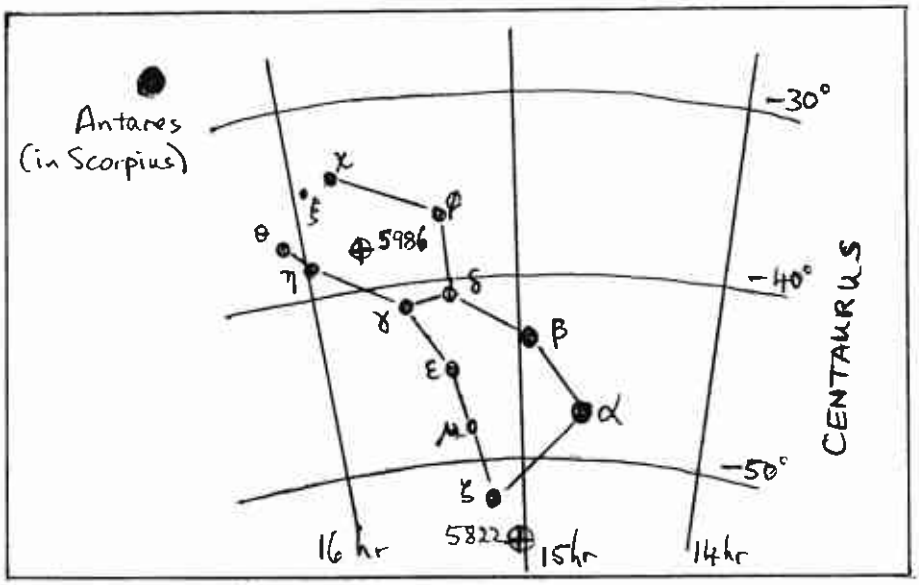
If you have any problems on the evening, call Phil on his mobile on 018 771 536.

Let's make a great night of it.

NGC 2997 in Antlia

(Photo by D. Malin)

LUPUS - THE WOLF



This constellation is not to be confused with Lepus (The Hare) which is on the opposite side of the South Celestial Pole (tucked in under Orion's foot). No, our friend Lupus has come to grief at the end of a pole (or spear?) held by the Centaur.

Not a spectacular constellation by any means (for starters, its brightest star is mag. 2.3) especially compared to its neighbours on either side, Scorpius and Centaurus. (Note the hint on where to find it?) But it's still worth some study by the more 'discerning' viewers.

Lepus contains some interesting doubles. Some stars of interest are:

Star	RA, Dec	Mag.	Type	Dist. (l.y.)	Double	Aperture Needed
α	14hr24m, -47°	2.3	Blue giant	620	-	-
β	14hr59m, -43°	2.7	B-W giant	680	-	-
γ	15hr35m, -41°	2.8	Blue-white	460	Close binary	200mm +
ε	15hr23m, -45°	3.4	Blue-white	620	8.8 mag. companion Primary a double	Small Large
η	16hr00m, -38°	3.4	Blue-white	520	7.9 mag. wide companion	Large
μ	15hr19m, -48°	4.3	Blue-white	250	7.2 mag. wide comp. Primary a double - 5.1 mag. each	Small 100mm+
ξ	15hr57m, -34°	5.1/5.6	Blue-white	130	Double	Small
π	15hr05m, -47°	3.9	Blue-white	400	Double, mag 4.7 + 4.8	75mm+

It's interesting that all these stars are fairly young and hot (being blues or blue-whites).

Now for a bit of variety:

NGC5822 is a loose open cluster containing about 150 stars. It's visible in binoculars and small scopes and is only 1500 l.y. away, roughly the same distance as Orion Nebula. (15hr 05m, -54°).

NGC5986 is a Globular Cluster about 33,000 l.y. away. At mag. 7, a small telescope should reveal a small rounded patch. Probably just too faint for binoculars. (15hr 46m, -38°).

SMOKE, MIRRORS AND MAGIC TRICKS

"Observational aspects of astronomy can sometimes be interpreted by individuals as illusionary and subjective."

So what do I mean with the statement above? In evidence I tender the following for consideration.

A) Have you ever been called over to a telescope and proudly shown by the operator a wonderfully faint galaxy or nebula. However, when one finds it difficult to observe, out comes the classic line "use averted vision" in order to fully appreciate the observation.

B) You have successfully located, say, Saturn or Jupiter in your own telescope using high power. However, you're so busy trying to keep it from moving out of the field of view all enjoyment is lost. Then your fellow astronomer says "would you like to look at my Jupiter?" and of course Jupiter is held perfectly in the filed of view.

C) You take your 25mm eyepiece and upon inserting it into your telescope, the Orion Nebula appears in glorious detail. Spying another scope, you take the same 25mm eyepiece and ...hold on! The Orion Nebula looks huge. Then you take the same eyepiece and upon insertion in another scope the Great nebula is now miniscule in proportion. 'What the Hell is going on here?'

The aforementioned conundrums will baffle the casual observer and novice but those who are well experienced will see through these posers for what they are. However, read on and all will be revealed.

A) Wonderful Faint Objects.
No magic here. From my experience take the following precautions if you're not seeing what your colleague is so excited about.
1. Eyesight can differ from person to person, so adjust the focus t show background stars as pinpoints.
2. Check for dew on the lens, mirror or even the eyepiece itself. This is very common.
3. Has the object moved out of the field of view? Maybe you bumped the telescope.
4. Us averted vision if you are still struggling.

Summary: There is no doubt that observing very faint objects is a skilled practice. Using averted vision is a tried and proven technique based upon certain sensitivities in our eyes. Basically, don't stare straight at the object, but just to the side. Maintain concentration trying to observe from the 'corner of your eye'. The faint light will fall upon the more sensitive rods in your eye's retina, rather than the cones at its centre.
Above all, patience is a virtue but be mindful that maybe the aperture of your particular telescope might make some objects simply unavailable due to insufficient light grasp.

B) Smack Bang In The Middle. No magic here. It's called a motor drive. Your telescope must be equipped with an equatorial head, motor drive or slow motion controls. When correctly aligned and features of the mount utilised, an object will maintain its position in the eyepiece. Basically, the telescope's motor turns at a speed or rate called the sidereal. The turn is proportional to the Earth's rotation, however in the opposite direction to the earth's spin. It simply cancels out the Earth's rotation.

No magic here...

With an equatorial telescope, and I'll make mention there are several versions on this theme, there are key components that should be explained. My discussions with many many members of MAS indicate that the German equatorial mount is most common, and I'm sure you'll recognise the following terms from the woefully inadequate and underwritten instruction books supplied with most scopes.

Polar Axis, Polar Alignment.
If you are not using this function and simply using

your instrument straight from car boot to paddock without correct setup, then you are denying yourself the ease of use that this type of telescope provides.
Basically. Set your latitude. Sydney is 34°. That's ballpark for here. Grab your scope and aim the polar axis in an area of sky half way between the stars Achenar and Hadar. It's crude, but ball park. To refine, it would be beneficial to come to a telescope workshop. Ask me for details.

Balance the Scope. Those big heavy things are counter weights and they are there for a reason. You could strip your gears, or worse, your scope could fall over. Take care and read the instructions for balancing. Again, the above mentioned is best described as 'hands on'. Ask for details.

C) The Magic Eyepiece.

Take a 25mm eyepiece, whack it in 3 different scopes and get 3 completely different magnifications. Well, 'no magic here'. Nothing up my sleeve, just simply the laws of optics. In particular something called the Focal ratio, and in my personal example, the 3 telescopes used have different focal ratios. So how about some specifics or are we dealing with smoke and mirrors after all? Well, let's do some mathematics.

The 'Focal Ratio' is the telescope's length divided by its aperture (the size of the mirror or lens). ie F=L/D. Take into consideration that the size of the aperture is in metric, ie mm, and don't be confused by the length. It's really the light path from the lens or mirror to the basic image it produces, the image of light that's ready to be magnified by an eyepiece. You don't need a tape measure to determine the length as it's nearly always written on the telescope tube as ...Focal Length.

I might say that the basic image produced is indefinable by human eyesight and the eyepieces we use correct the image so we can discern detail.

Announcing The Contenders:
* The Meade 8" or 200mm reflector which happens to be an equatorially mounted scope: let's do the maths:- Aperture 200mm, Length 1200mm. F= 1200/200 = 6. We call that F6 or Focal Ratio 6.

*Celestron Schmidt Cassegrain, aperture is 200mm and the mounting system is an equatorial with motor drives and length of light path is 2030mm. Doing the maths:-
F = 2030/200 = 10, or F10.

* The Orion short tube refractor on a photo tripod. Not equatorial, not Dobsonion, not Alt-Azimuth. Not anything really, just a tripod. The maths again:- Aperture 80mm, length 400mm. F = 400/80. ie F5.

Remember I said that the telescope's light path will produce a basic image that the eyepiece will capture and recombine the image for observation. The following might be helpful but please note this is the easiest way of explanation I can think of, and no consideration has been given to exact scale; use is for illustration purposes only.

The basic image diagram:

The Meade
At F.6 ⟶

The Celestron
At F.10

The Orion Short
Tube at F.5 ⟶

We now have a basic understanding of F ratios but to get back to the original 'magic eyepiece', why does the same eyepiece give different images in the 3 different scopes?

For the last time we do the maths. You take the focal length and divide it by the eyepiece as shown here:
Meade: 1200/25 = 48 times.
Celestron: 2030/25 = 81 times
Orion: 400/25 = 16 times.

Now let's get back to the basic image size, the circles described earlier. As the basic

images are different in each telescope, the eyepiece is dealing with a larger or smaller area and this gives the image size or magnification. There is another consideration. Have you ever heard someone explain F ratios as a 'piece of butter on toast'? The same dollop spread more thinly relates to the higher ratios. I've always been confused by this explanation, but upon researching this analogy, it is entirely correct.

Consider the basic image diagrams. The concentration of light at F.5 is different from the concentration at F.10. The light at F.10 is spread over a larger area and each square millimeter is duller than at the short end of the ratio, ie F.5. This is no great problem as you will notice no difference when viewing star fields as the theory states that a star is a point of light and will remain so regardless of magnification and the F.10 scope will have the same brightness as the smaller F numbers.

With larger F ratios, the given magnification for an eyepiece will be higher than for a smaller ratio. So how much power can I get? As Tim the Toolman Taylor says: "More Power, More Power."

Well, this has been a big article for me. My knowledge of F ratios is only several weeks old. I've researched and asked questions as in the pursuit of my next telescope having a knowledge of a F4.5 or F12 scope or anything in between is quite important as to final choice.

As mentioned previously, this is my current knowledge of the subject. If I'm wrong, correct me in the next issue. This is a learning environment and I welcome debate. In this way the learning is more effective, bumps and bruises not withstanding.

In the next bi-monthly Prime Focus, we will learn about "More power, more power!".

Regards

Noel Sharpe ■

STAR NIGHT 19TH SEPTEMBER

We have arranged another Star Night at Wilton, with the always kind permission of Carol Farrell.

Most people know where Carol's place is by now. If you don't know, ask for directions from a committee member or anyone else who has been there.

Last time it was totally clouded out. Hopefully this time we'll have some great stars.

So, keep Saturday 19th September free.

HUMBLE ROADSIDE VIEWING

It's all about making the most of opportunities. Never give a clear dark sky an even break!

I was travelling from Sydney to Orange in a company car with a colleague. We were halfway between Bathurst and Orange about 7pm when I noticed a bright star directly ahead of me. You can't help yourself. You start scanning the sky for clues, then exclaim. 'That's Sirius.'

My colleague was concerned. How serious? Not very, I said, but we'd better stop and have a look. So we pulled into a truck rest area and stopped the car and turned off the lights.

The sky that welcomed us took away our breath. It was an Ilford like sky, dark squared. The Milky Way was like spilt milk (funny, that), and ω Centaurii was instantly visible as a fuzzy star.

We stood there in the freezing cold for over 30 minutes. By chance (?) I'd brought my binoculars with me. My friend who lives on the North Shore said he'd never seen such a sky. I'll believe it.

The only thing that got us back in the car was the cold... and hunger. We still hadn't had tea. I almost didn't care. Opportunities... grab 'em.

Bob Bee ■

MOVIE REVIEW – "DEEP IMPACT"

After the many disappointments of big movies like Starship Troopers and Lost in Space, at last comes a film that has a story, good acting, great direction and the best special effects I've seen.

So, why this review? Remember the "Who Killed The Dinosaurs" lecture I gave at one of our meetings and the articles in Prime Focus that followed? I don't know, there's just something about the extinction of the human race that's appealing. Let's look on the bright side – no war, no politics, no TV reruns, no losses to Qld in the State of Origin. Well, no anything really as we would all be gone.

I won't go into the details but this film does a very creditable job keeping things scientific and I think this adds to its appeal.

In the film, our planet is endangered by a comet some 7 miles (11km) wide. At this size, if it were to hit, we would suffer an E.L.E (Extinction Local Event). I won't spoil the movie for you by telling what happens, except to say that the end scenes are frightening in the extreme. This is in my opinion a very well crafted. Film and very interesting. If you liked Apollo 13 and Contact, give this one a shot.

Strange to think that I extensively observed the Comet Hale-Bopp a little while back. There in my eyepiece was a comet not 11km but 40km wide. According to the research done just 1 week after its discovery it was suggested its angle of orbit placed its impact site very close to us, like maybe slap bang between Sydney and Campbelltown. Ouch!

"Deep Impact" portrays human relationships and interactions. These storylines are somewhat interesting and services the basic context in so far as if you had a short time to live, what would you do? Don't pay any regard to critics who panned the film, just let the story unfold. The scenes in which the spacecraft 'Messiah' land on the comet itself are great (at this stage) science fiction. However, the end scenes are based on science fact, with 95% of the input from NASA accepted by producer Mimi Leder.

You're a member of our Society and many would have observed Hale-Bopp, have a knowledge of the impact crater in Yucatan Peninsula, or have seen the devastating effects of the Shoemaker-Levy comet which impacted with Jupiter.

So go see 'Deep Impact'. It's good, it's fact, thought provoking and... it's half price admission on Tuesdays.

Noel Sharpe ■

ASTEROID SIGHTING

(Date 14th June 1998)
Well, thought we had a 'hit' in NGC3412 and got pretty excited at our last night as I thought I had found a supernova while doing the 10""survey.

Unfortunately, while trying to identify it, it clouded over but a few people confirmed what I was seeing and I had all necessary pictures.

Two days later, Bob Evans and Peter Marples checked it out... nothing there. However, we did an asteroid plot and it was Juno 3 (an asteroid) and it moved right out of the field of view of a 24mm within two days.

I estimated the suspect between 10 and 11 magnitude, and it was the asteroid's magnitude at 10.5.

So not bad for an old blind man like me, hey?

Peter Elston ■

Prime Focus is the official organ of Macarthur Astronomical Society. It is issued monthly. All members are encouraged to contribute articles or news to Prime Focus. Please submit copy on floppy disc (WordPerfect or Word accepted) or by email to Bob Bee.
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