



SCORPIO

The Journal of the
Astronomical Society of Frankston Inc.
P.O. Box 596, Frankston, Victoria 3199
Volume IV No. 6 1995

The Astronomical Society of Frankston was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange of ideas and information. Regular observing nights, both private and public are arranged to observe currently available celestial objects. In addition, the Society provides the services of its members for educational presentations or observing nights for schools and local community groups.

Meeting Venue:

The Peninsula School
Wooralla Drive, Mt Eliza
(Melways Map 105, F5)

Room F6 at 8:00pm on the third
Wednesday of each month
except December.

Visitors always welcome

Annual Membership Fees	
Full Member	\$20
Student/Concession	\$15
Family	\$30
Family Pensioners	\$25
Newsletter Only	\$10

Membership fees are due
1st of January each year. Note:
1995 rates are shown above.

President

Peter Lowe 018 318 920

Vice President & Editor

Peter Skilton (03) 9776 5898

Treasurer

Peter Brown (03) 9789 5679

Secretary

Don Leggett (059) 85 4927

FUTURE EVENTS

General Meetings:

December

Remember, no meeting this
month! Next in January.

Wed 17th January '96

Session 1: Talk on *Vermin of
the Sky* by Peter Lowe.

Session 2: David Girling & Bob
Heale on *Practical Astronomy*.

Wed 21st February '96

Session 1: Talk on *Basic
Introductory Astronomy* by
various members.

Session 2: David Girling & Bob
Heale on *Practical Astronomy*.

Wed 20th March '96

Session 1: Talk on *From the
Smallest to the Biggest in the
Universe* by Peter Skilton.

Session 2: David Girling & Bob
Heale on *Practical Astronomy*.

Viewing Nights:

Members Only:

Sat 18th & 25th November, 16th
December, 20th & 27th January

'96 all at *The Briars*, Nepean
Hwy, Mt. Martha (Melways 145,
E12). If weather forecast for the
Sat looks bad, the Friday before
may be used instead. Always
confirm with David Girling on
(059) 76-2806 before attending.
Meet at the Briars' Visitor
Centre at 8 pm sharp (Daylight
Savings).

Public/School/Community Groups Viewing nights or slide nights:

If you can assist, please contact
the Secretary.

- Frankston Wesley Uniting
Church, Fri 27th October.
Beauty Park (Melways 102,
D3) in the North carpark.
About 20 expected.
- Friends of Braeside Park, Fri
24th November, 8pm at
Braeside Park. About 150
expected. If unable to
proceed due to weather, then
will be held on Sat 25th
instead. (Melways 88, D8).
- Kingsley Park Primary
School Grades 5 & 6, Wed
29th Nov & Thu 30th Nov.
Slide show in the hall, then
viewing on the basketball

court. About 90 children expected each night. Melways 103, A9. Franciscan Ave, Frankston. Time to be advised but expect 7-7:30pm.

- The Briars' Pre-booked Public Prowl viewing nights every Fri evening in Jan 1996. Slides, then viewing if fine. Times to be advised.

Social Events:

- Guy Fawkes Car Rally & Sausage Sizzle, Sun 5th Nov from 1 pm to 4 pm. Cost will be \$5 a head (sausages included). Meet at Mt. Martha Park. Come join the torturous fun.
- Christmas Breakup, Mt. Martha Park, Sat 2nd Dec, 4pm in the picnic area. Melways 150, H7.
- Christmas dinner, Grand Hotel, Main St, Mornington on Thur 14th Dec at 6:30pm. Counter meal so you select to suit your budget.

Phenomenal Events:

- Orionids meteor shower can be seen in late evening to dawn near the constellation of Orion, until 7th Nov. It peaks around the 20-24th Oct. Typically 25 fast, bright meteor trains per hour, radiating out from near the head of Orion. This meteor shower originates from the tail of Halley's comet.
- Comet P-Schwassmann-Wachmann-3 is back with a vengeance. Although predicted to be exceedingly dim, it has flared up this time round the Sun, being a

respectable mag 5, near Antares in Scorpius. At the time of writing, the coma is visible to the naked eye, while small binoculars readily show a tail pointing away from the Sun. It certainly is a glorious sight. Hurry before it fades. Ask to see it at a Briar's viewing night.

YOUR SOCIETY

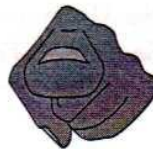
NEW MEMBERS

Welcome to the following new Society member:
Sharron Fletcher

Total membership is 74 at the moment, keeping us the 2nd largest Society in Victoria. Please feel free to say hello at general meetings, where your name tag will be made available. Society badges showing the logo, Planispheres and Astronomy books & posters are also available at monthly meetings. A limited supply of Society windcheaters is available for \$35 in M/L/XL from the Secretary, so hurry for Christmas.

HELP NEEDED

Is your mailing label correct? If not, please pass corrections to the Secretary.



Does anyone know much about Tides? The Field Naturalists have asked us for a talk on 13th April 1996, with a practical demo! The latter should be a challenge.

We need assistance for our public viewing nights listed for the coming months. Even if you know little or no Astronomy, and have no telescope or binoculars, we still could do with your help. Examples include marshalling people to each of the telescopes, collecting money, making tea, chatting to those waiting in line,

bringing a slide projector and so on. Don't feel bashful, contact the Secretary right away.

SECRETARY'S JOTTINGS

We have been asked to host VASTROC in 1997, and committee is still investigating the costs of doing so. It is now almost certain that we will do this, but it will be a fairly low-key event. We are also exploring the possibility of running a TAFE Astronomy course for members of the public, and appearing on Australia Day next year. After much lively discussion over Annual Subscriptions for Society membership, compared to those of other Societies (some increase them each year), *Committee has decided to propose a motion at the AGM to raise these to:* FAMILY \$40, ADULT \$30, PENSIONER \$25, PENSIONER FAMILY \$35, STUDENT \$20. Newer members who have joined us part way through the year will naturally have their Subs pro-rata'd. The Briars' development is progressing, with Planning and Building permits currently in Council. These, and our longer term lease are expected to be finalised by Christmas. David Girling's wife Kerry is expecting their 2nd child just before Christmas day. Good luck and best wishes. Another Astronomer maybe?

Don Leggett

RECENT MEETINGS

September's meeting had an attendance of over 40. In one room, the mysteries of the Solar Wind were explained by Peter Lowe, with discussions ranging far and wide in response to questions. Next door's session by Bob Heale discussed

the pros and cons of the various telescope filters that are available, based on his observing experience. A brief discussion of commercial software then ensued. Following on from this, David Girling then demonstrated his observing techniques and some useful handy tips, including his small voice-activated tape recorder for observations at the scope, and pre-printed sketching cards. Several such scope sketches were then passed around.

The Vice Pres chaired October's gathering of just on 40. The Apollo 13 film gathering went ahead on Sun 1st Oct with several keen members attending who hadn't seen it. After a lengthy session on current phenomena due to the many things happening in the sky and other events (e.g. John Dobson's lightning visit to the LVAS - sorry we received notification the night before), the meeting split into two. In one room, Bob and David demonstrated Astronomical software packages since the night was too cloudy to view through David's scope. In the other room, two videos on a cometary theme were shown, including ones detailing the time lapse approach of Giotto to comet P-Halley some 9 years ago, and the other exploring the effects of a future impact of a comet on the Earth. Prior to the meeting, someone had spared no effort in ensuring a naked eye comet heralded the gathering. The comet was visible in Scorpius, near the star tau SCO.

Ros Skilton

MORE ON COMETS

Sad news for the 3 Japanese amateurs who thought their

names would be immortalised recently when they discovered a new fuzzy blob in the sky, to be called comet Nakamura-Tanaka-Utsunomiya. The "new" comet was actually a rediscovery of an old one found last century in 1846, then lost. No naming fame this time, since it is already called comet de Vico!

Comet P-Schwassmann-Wachmann-3 is currently in the constellation of Scorpius. Several members reported it having a coma, or head, easily visible to the naked eye on the weekend of 14th Oct through to the 20th Oct, when bad weather hit. Simple 7x50 binoculars showed a clear tail on a mag 5 coma. At x30 magnification in a 15 cm scope, a quarter degree tail was seen on 17th Oct, after being a magnificent 1.5 degrees on the preceding weekend. That's three times the apparent diameter of the Moon in the sky. This was a pleasant surprise, as this comet (which rounds the Sun every 5.3 years) was anticipated to be a very dim magnitude 12.7).

VARIABLE STARS

An alert has been issued for all observers having a scope of 15cm aperture or over to keep an eye on the 2 star systems Z CHA and OY CAR. A super outburst in brightness of these objects is predicted for 14 Oct and 25 Nov respectively, and the professionals want to catch them in the act. We provide the patrolling service that alerts them. Such predictions are generally an educated guess, so it could happen any time from now. Any outburst should be notified promptly. Charts and further details are available from the editor. For newer

participants, assistance in beginning to observe Variable stars can be obtained at any meeting.

OCCULTATIONS

The predicted passage of the bright minor planet Siegena in front of a magnitude 9 background star on 10th October in our region, promised to be very exciting with last minute CCD imaging at the Anglo Australia Observatory revealing that its shadow would most likely pass somewhere around Southern Victoria to Northern Tasmania. In fact amateurs in Hawaii and across Australia had been alerted to make an extra special effort on this one. However, it was not to be due to drizzle and total cloud cover over much of the lower half of Australia.

GRAZE EXPEDITION

A combined ASV, ASF and ALVAS graze is planned for the hills near Warragul on Sun 29th Oct. Event occurs at 10:50pm Summer time. The star is magnitude 8.4 on a 35% Moon, 23 degrees elevation. A 15 cm scope at a minimum is required to catch it. If interested, phone Peter Skilton. The keen team currently numbers 7, despite the night time drive. It is the last graze predicted for the year. Clear skies are planned.

FOR THE RECORD

In the last issue, the tall chimney where Peter Lowe experimented with trying to see the stars during daylight hours at his work, Pilkingtons at Dandenong, was actually over 500 feet tall. The sky was its normal bright blue to his eye.

In the nomination form last issue for committee elections, our Secretary has drawn my attention to our constitution in that a Proposer is also needed in addition to a Secunder, and that one person cannot nominate for multiple Office bearer positions i.e. Pres, Vice Pres, Treasurer or Secretary. Please amend your forms accordingly.

JUST FOR STARTERS

UNIVERSAL TIME

Universal Time (UT) is the time measurement standard used as the basis for all civil timekeeping, and is related to the direction at which a given point on the planet is pointing at any instant. Due to irregular, unpredictable, movement in the Earth's poles, and slowing of the Earth's spin, this movement is not absolutely constant, and is sometimes corrected to be on the so-called UT1 timescale.

Australia has a time frequency standard shortwave radio station, called VNG, that users anywhere in the continent can tune into so as to determine the exact time. Its broadcast time signal service is known as Coordinated Universal Time (UTC). UTC

differs from UT1 by 9/10 of a second at most. UTC time also differs by a whole number of seconds from International Atomic Time (TAI), which is based on precision atomic clocks. Atomic time is not used for civil purposes as it will eventually get out of step with the normal day/night cycle.

Coordinated Universal Time is the time at the Greenwich Prime Meridian at zero degrees longitude, and used to be known as Greenwich Mean Time (GMT). GMT is no longer used by general agreement due to its ambiguity. Prior to 1925, the GMT day began at noon, and finished at noon so that the date would not change in the middle of the night for an observer in Europe. In 1925, this confusing standard was changed so that the day starts at midnight and finishes at midnight.

On the last day of June or December each year, a decision is made internationally as to whether to insert a leap second into the time signal. This is a similar idea to the familiar notion of a leap year. The decision rests on how much the Earth's poles have wandered about since the last insertion of a second. In effect, the year

becomes longer as the Earth's rotation is slowing down!

On the last day of June or December it can be fascinating to listen to the time signal count from 23:59:57 to 23:59:58 to 23:59:59 to 23:59:60 (yes that's right 60 seconds) to 00:00:00.

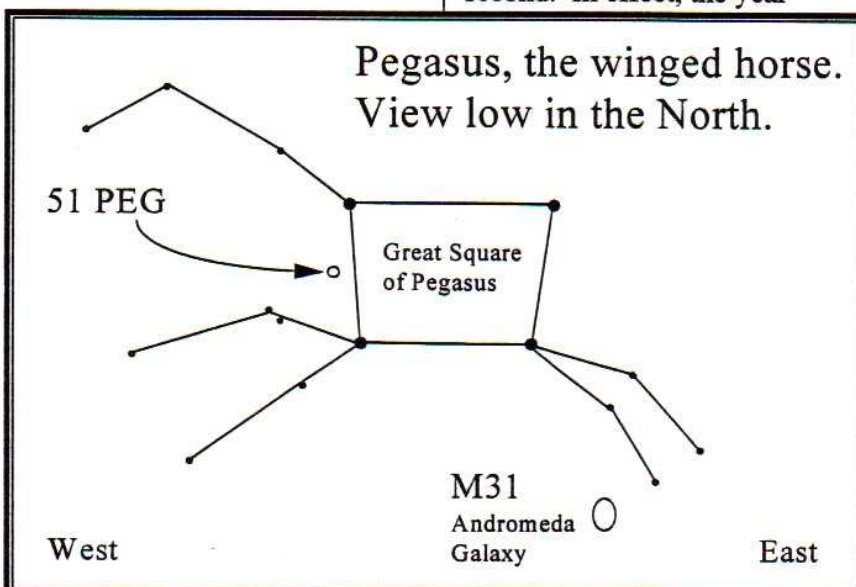
If you have a shortwave receiver tuned to the time signal station on 01 July at 10:00 am local time, or on 01 January next year at 11:00 am local time, you may be one of the privileged few to hear the leap second insertion. These times take into account that our time zone in Melbourne is 10 hours ahead of UTC normally, and 11 hours ahead during Daylight Savings over Summer.

The VNG shortwave station broadcasts on 5.000 MHz as well as on other frequencies, and can be recognised by its very characteristic "beep" every second. An article on VNG will appear in a future edition.

IN THE NEWS

Galloping into the skies this issue, Swiss Astronomers recently announced that a Jupiter-like planet has been discovered around the star called *51 Pegasus*, based on measured wobbles in the star's motion. This star is only 42 light years away, making it in our backyard, and is similar in age and characteristics to our own Sun.

The object apparently orbits once every 4 days and is thought to be over 1,000 degrees C in temperature. This claim is the strongest yet for a planet orbiting a Sun-like star. *51 Pegasus* is visible to the naked eye in our evening sky at the moment, over



to the North, and forms an even isosceles triangle with the two bright stars in the Great Square of Pegasus asterism that form the horse's chest.

With Daylight Savings upon us, it is interesting to note that in January 1895, a century ago, a conference was held at the Old Melbourne Observatory in the Botanic Gardens at Melbourne. This gathering represented the interests of the three existing colonies at that time of New South Wales, South Australia and Victoria. It was agreed at this conference, that Australian Standard Time should be defined for the first time relative to the meridian of 150 degrees East (which is situated in the Tasman Sea, in a North-South lines roughly from Mallacoota to Rockhampton - check it out on your atlas). This meant that time for Australia would ordinarily be 10 hours ahead of Universal Time, since 1 hour of time equals every 15 degrees of longitude East of Greenwich. At that instant, Western Australia wasn't a consideration.

It is also 100 years ago that a Frenchman, M.H.de Sarranton, first suggested that we decimalise (or decimate) how we measure time. Indeed, when Australia switched to metrics in the 1970's, it was put forward (with tongue in cheek) that this was planned to happen in the form of decimal time. Imagine having an hour made up of 100 smaller minutes, instead of 60, and each minute composed of 100 smaller seconds, instead of 60. It sounds confusing on the surface, but any arithmetic involving time would be a breeze. The time written as 8.2216 would be 22 minutes and

16 seconds past 8 o'clock. The day would still be 24 hours long, but would now be composed of 10,000 seconds every hour. I'm sure the clock and watch makers of the world would be happy.

STAR DUST MEMORIES

Not all objects that enter the Earth's atmosphere are large. Most of the matter swept up by our planet is actually in the form of interplanetary dust that is so light that it slowly drifts down to the Earth's surface, rather than burning up upon re-entry. Each year, the Earth gains weight to the tune of several million tonnes.

This descending dust can be readily caught by high flying aircraft employing sophisticated gadgetry that works like a large piece of fly paper.

Recent work on collected dust samples at high altitude has strongly suggested that not only does this dust come from the space between the planets (i.e. interplanetary), but also from between the stars (i.e. interstellar).

The dust is made of silicates, including glasses embedded with metals and sulphides. The identification of the dust as originating outside our Solar System is based on chemical evidence that indicates they were heavily irradiated by ions prior to them aggregating into dust grains, and due to strong similarities between the dust's spectrum and that observed for dust embedded in distant deep sky nebulae.

The amount of radiation damage to the dust detected far exceeds that expected from the Solar Wind issuing from our Sun

today, and the suggestion is that some other star was responsible. Of course, an alternative might just be that our Sun was considerably more active in the past than it is now, and hence had a stronger Solar Wind.

FEATURE

IF GALAXIES ROTATE, WHAT DO GLOBULAR CLUSTERS DO?

THEY CAN'T JUST SIT OUT THERE CAN THEY?

This is a very good question, and the answer is "Oh, yes they can".

A lot of the shapes we see in space are moulded by gravity. Our Sun, like the other stars is spherical due to its self gravitation. Galaxies are extremely flat, circular objects because of the interplay between the gravitation and orbital motions of the stars and dust within them. Distorted galaxies are the result of gravity twisting them like plasticine as they move too close to each other. The same is true in star clusters.

We know stars generally, if not always, form as clusters. Within a newly formed cluster, stars are gravitationally attracting each other and the motion of any particular star is determined by the sum total of the gravitational attractions acting upon it.

Individual stars follow long graceful tracks through the heavens. Over short timescales, such as a few million years, any particular star would follow a mostly straight line but on longer timescales of a few eons we would see the stars within a cluster performing complex,

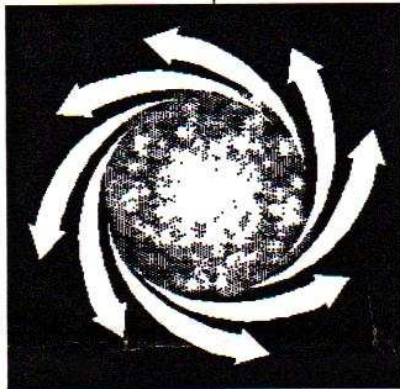
almost chaotic ballets of movement as they move around the clusters centre of gravity. Over "blink of an eye" timescales, such as a human lifetime, everything seems frozen into motionlessness. The beautiful Jewel Box cluster NGC4755 appears to us in our telescopes today exactly the same as it did to amateurs in the middle of the last century.

For those computer minded amateurs amongst us, it is very easy to simulate star cluster dynamics and play with clusters exploring why some clusters eventually break up and some stay as stable structures.

When I say a cluster breaks up what I really mean is some stars have high enough velocity to fly right away from the cluster and never come back. This is another way of saying the star has gained a speed greater than the cluster's escape velocity. Such stars didn't have these high velocities when they formed because they would have flowed straight out of the cluster in the first place, and no cluster would ever have formed. These break-away stars have gained the extra speed somehow. A few hours playing on the computer quickly shows when stars get very close to one another, they experience large changes in both their intrinsic speed and direction of motion. Sometimes they can be slowed and sometimes speed up.

For small clusters (meaning low mass clusters of only a 100 stars or so) you do not have to speed a

star up much before it acquires the cluster escape velocity and shoots off on its own. If we consider bigger and bigger clusters, such as globulars, which have hundreds of thousands of stars, the escape velocity is so high that the stars are essentially trapped. This means stars in globulars just perform endless gravitational dances around the cluster centre of gravity, constantly interacting with the stars in their immediate vicinity with no chance of escape. I like to think of globular clusters as analogous to a swarm of bees. Each bee is flying on its



own individual path interacting with the bees around it and from the outside we see a spherical ball of bees flying along as a single cluster.

Why you may ask doesn't the cluster just steadily collapse into one big star? Remember all the stars in the cluster have some speed and, unless they actually collide, there is no way to get rid of this stellar kinetic energy. While globular clusters have enormous numbers of stars packed tightly into relatively small volumes, remember compared with interstellar distance the sizes of stars are very small, almost pointlike. The chances of actual stellar collisions are extremely small and while collisions are no doubt common in globulars, the chances of observing such events over human lifetime scales are equally extremely small.

Globular clusters may still have some rotational properties left over from their formation, but it

is perfectly possible for the cluster to remain stable without overall rotation. Just remember next time you look at a globular cluster, think of a swarm of bees and slow the timescale down so each bee is frozen in time.

Peter Lowe

NACAA 17 in BRISBANE

The biennial meeting of amateur Astronomers from across Australia is on again over the Easter holiday (April 5-8 1996). This time, the combined SE Queensland Astronomical Societies are hosting the National Australian Convention of Amateur Astronomers in Brisbane.

Any amateur can attend, whether they are knowledgeable, or know absolutely nil about Astronomy but are keen to learn more.

Registration is \$75 plus accommodation, and application forms and details of the conference are available from any Committee member. The deadline for rego is 31 Jan 1996.

At the previous conference in Canberra, our Society contributed a few papers, and several members and their families attended. All thoroughly enjoyed the experience. We, of course, had the pleasure of hosting the 1990 NACAA at Frankston.

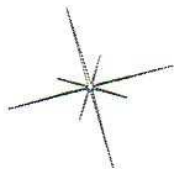
FOR SALE

Parks off-axis guider body for Celestron or Meade SCT, but does not work with f6.3 focal reducer/corrector - \$65. If interested, phone Renato Alessio on 9798 8926.

BACK ISSUES

Back copies are available for \$3.

SKY WAYS: THE EYES HAVE IT



As an Amateur Astronomer of the 90's, one could feel stuck between a rock and a hard place with technology zooming ahead.

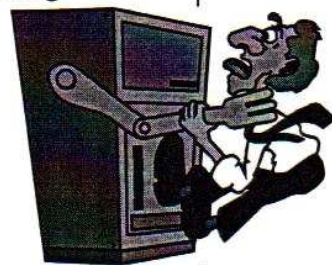
It seems new and old
Astronomers are wondering
where to look! Is the computer
taking over from the telescope?
I hope not! Why?

As an amateur Astronomer for
over 20 years, I have yet to
experience on a computer the
thrill of seeing the Moon and its
craters, Saturn's rings, the cloud
belts of Jupiter and its moons
and all the stars that are
diamond-like through the eye-
piece. The thrill of looking at a
galaxy and finding out I was
looking back in time!

There is one experience that
stands out more than any other:
the view of the Eta Carinae
nebula with an OIII filter. For
me, so far there has been no
better. It is just incredible.
These are experiences that one
cannot get out of a computer.

Now I am not knocking
computers and
planetarium
programs,
Internet or
CCD's. These
are good things
for people to use
and learn from,

but I think it will be a sad night
when someone decides that on a
clear night they will use their
computer instead of their
telescope. May one wonder at
the Universe with one's own
eyes!



David Girling

FROM AROUND THE NATION

Astronomical
Societies in
Australia, as a
rule, exchange
each other's
newsletters to
assist in sharing
items of interest.

This column grabs some of the
highlights of recent receipts.

*Astron.Soc. of Alice Springs
(NT)* - recently played host to
Swiss amateurs who were shown
the Ring and Helix nebulae in
binoculars.

*Astron.Soc. of the South West
(WA)* - their f3.9 50 cm
Newtonian has several problems,
including a thin mirror that
flexes and is temperature
sensitive if too many people get
near it, troublesome collimation,
and possibly faulty figuring.

Sutherland Astr. Soc. (NSW) -
new roll-off roof Observatory is
nearing completion, in addition
to their existing Green Point
dome and 40 cm scope. The
equipment to house in the new
structure is currently being
discussed, with CCD's being a
possibility.

*Latrobe Valley Astr.
Soc. (VIC)* - the
240V power to their
Observatory has been
disconnected due to
the cost. A 12V
system now provides
lights and drive
power for their Evans scope.
The LVAS is twinned with the
*Bays Mountain Amateur
Astronomers* in the USA.

Astr. Soc. of NSW (NSW) -
hosted the South Pacific Star
Party earlier this year at their
Ilford site, Wiruna, with 200



amateurs attending. There are
plans for revegetating it to
reduce wind, light intrusion
and shooters, and plans to
build kitchen facilities.
They have their own page
on the Internet at [http://
www.st.nepean.uws.edu.au/
~lmacdona/asnswi.html](http://www.st.nepean.uws.edu.au/~lmacdona/asnswi.html).

Astron.Soc. of Victoria (VIC) -
an Internet home page is now
available on the World Wide
Web that covers amateur
Astronomy in Victoria for all
Societies. We have an entry
there also. See [http://www.
vicnet.net.au/~astrovic/asv.htm](http://www.vicnet.net.au/~astrovic/asv.htm).

FINAL PRONOUNCEMENT - CHARON

In 1978, the Astronomer James
Christy discovered that the
planet Pluto actually had a small
moon of its own. Its photo was
shown in the last newsletter.
Since Pluto was the God of the
underworld in mythology, it was
appropriate that the new moon
be called after the ferryman who
supposedly transported the souls
of the dead across the river Styx
to the underworld. Although
most people pronounce the
moon's name as "Ka-ron", it is
correctly pronounced "Sha-ron"
since it was also intended for the
pronounced name to honour the
discoverer's wife, Charlene,
naturally pronounced "Sha-
leen".

If you have any Astronomical query
that has been niggling you for years,
drop it in the question box at a General
Meeting and let us look into it for you.

NEXT ISSUE

*The Strange tale of the search
for the Mysterious planet
Vulcan.*

CROSSWORD COMPETITION

First opened, most correct entry from a member to the P.O. Box wins a surprise Astronomy book. Answers in next edition.

Across

- 1 Annual meteor shower originating from Halley's Comet.
- 2 Second most common thing in the Universe.
- 3 Russian space station launched in 1986.
- 4 Pointed extremity of a crescent shape.
- 5 About 21st June and 21st December each year.

Down

- 1 13th Constellation of the zodiac.
- 3 The Crab Nebula.
- 6 Transparent optical device that bends light passing through it.
- 7 Abbreviation for the Orion constellation.
- 8 Light responsible for sunburn and emission nebulae.
- 9 Phone home.
- 10 Interstellar medium.
- 11 Before the Year 1.
- 12 One of the many ringed objects in our Solar System.

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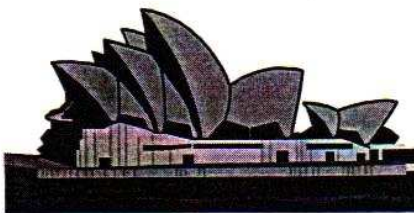


Left - ASF Xmas BBQ at Mt Martha Park on the 2nd December 1995

Photo - By John Cleverdon



Note: If this box is ticked then membership needs renewing and this will be your last edition of the newsletter. Please contact the Treasurer in this case.



If a star is represented as a single grain of rice, then you would need a volume the size of the Sydney Opera House to hold all the stars in just our Milky Way galaxy alone.